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HOME Computing WEEKLY

Acorn squashes rumour

The British microcomputer industry is fitter than ever says Chris Curry, Acorn's managing director.

At a press conference Mr Curry said that sales of the BBC computer over Christmas were at the 100,000 level and a similar number of Electrons were sold.

These figures are double those of last year and show that Acorn sold over twice as many machines in 1984, compared with 1983.

The conference was called to dispel rumours that the company was in trouble. "It's true, we were disappointed

Continued on page 5

48K Spectrum [illegible]

In a surprise move, Sinclair announced it is to cease production of the 48K Spectrum.

It is to be replaced by the new Spectrum Plus which has been slashed by £50. The Plus model will now sell for ju [illegible] 129.9 [illegible] without any free [illegible] ft [illegible] iously the Plus was [illegible] th six cassettes, but you [illegible] ill buy the pack with [illegible] pectrum + for £14.95.

The difference between [illegible] two machines is the [illegible] keyboard. A number o [illegible] ipheral manufacturers ha [illegible] n supplying keyboards f [illegible] Spectrum with a variety [illegible] ures not available on t [illegible] rubber keyboard.

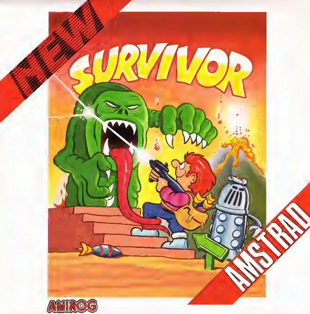
The Plus has a full keyboard

[illegible]tinued [illegible]

EXCLUSIVE!

First ever review of Romik's Captain Starlight

Have a Wally of a day out! Design a badge and win heaps of prizes



ANIROG

SURVIVOR Search the haunted rooms of Deadstone Abbey for the untold treasures left from years gone by. However as you help Angus around the ancient building beware of the evil spirits who will chase Angus wherever he goes. All he has to defend himself is his trusty gun and porcupine bombs. Luckily for Angus there are various objects lying around the Abbey such as ammunition money bags and bottles of life giving elixir. There are 1006 various rooms all presented in remarkably clear and colourful graphics with beautifully smooth scrolling screens. Ahead lies a terrifying challenge for Angus and its up to you to help him. Are you the sole survivor!

AMSTRAD £7.95

HOUSE OF USHER Enter the House of Usher at your own risk as you may never leave again. However once inside there is a choice of nine rooms to select. Behind each door is a totally different action packed arcade game each of which are certain to strain your nerves to the limit. If you manage to get through these nine rooms another two secret rooms (x and y) will appear but beware the evil powers of the House of Usher

AMSTRAD £7.95

FLIGHT PATH Flight Path is without doubt the best flight simulator on the C/16 and Amstrad. The many elaborate features include Altometer flaps directional headings crosswinds fires ground warning lights and reverse thrust to name but a few. Also included are smooth graphics as you take off cruise over mountains, and land once again.

AMSTRAD £6.95

3D TIME TREK As sole survivor of the planet 'Corillian' your quest is one of anger and revenge. The starship you are flying is full of the latest inboard computers and extra powerful sensors. Also included are full 3D graphics to add unbelievable realism to this fantastic journey through time itself and beyond

AMSTRAD £7.95

MOON BUGGY You must skillfully manoeuvre your jumping patrol vehicle over dangerous moon craters as well as large boulders and cunningly placed mines. Not only this but avoid the hovering alien spaceship as it bombards you from above.

AMSTRAD £7.95

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REGULARS

News 5,8

Mikro-Gen competition 8
Design a Wally and win a great day out — plus heaps of software

Letters 62

Gallup software chart 45
The chart you can trust

Classified ads start on 46

SOFTWARE REVIEWS

Weird and wonderful 10
Try your luck in exotic locations

Starlight exclusive 17
The first review of Romik's new release, Captain Starlight

Useful handful 52
Utilities to keep your micro busy

In depth 61
Two extended reviews of new software for your Commodore

A taste for adventure 44
If you like adventures you'll love this page

HOME COMPUTING
WEEKLY
BRITAIN'S BRIGHTEST

SPECIALS

1984 Hi-score 15
Thumbs up and thumbs down to the most memorable Beeb games of 1984

Insight on the Amstrad CPC464 15
How to set up the RSX and get it working

BBC programming 35
Error trapping numbers on the BBC

Special review 24
Close-up on Oric assemblers and monitors

QL Bookware 55
Reviews of the latest titles for the QL

PROGRAMS

Oric/Atmos 55
Two for the price of one

VIC-20 18
They're coming to get you!

Commodore 64 28
Snakes and mushrooms

Spectrum 50
Space battle

ZX81 55
Full screen editor

VIC-20/Commodore 64 56
Helping hand — four utilities

Software houses: send your software for review to the editorial office at the address below. Contact us for competitions and other promotions, too

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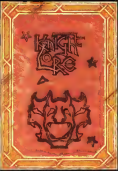
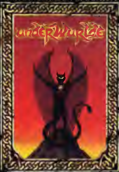
ULTIMATE
PLAY THE GAME

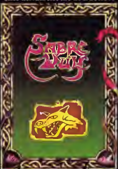
48K SINCLAIR ZX SPECTRUM


Knight Lore

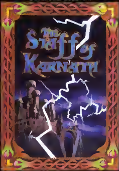
48K SINCLAIR ZX SPECTRUM


Underwurlde

BBC MODEL B 1-2 OS
48K SINCLAIR ZX SPECTRUM



COMMODORE 64


The Staff of Karnath

"KNIGHTLORE", "UNDERWURLDE", "SABRE WULF", and "STAFF OF KARNATH" recommended retail price £9.95 inc VAT. Available from W.H.SMITH, BOOTS, J.MENZIES, WOOLWORTHS and all good software retail outlets. Also available from ULTIMATE PLAY THE GAME, The Green, Ashby-de-la-Zouch, Leicestershire LE6 5JU (P&P are included) Tel: (0530) 411485

48K Spectrum dead

From front page

in the style of the Sinclair QL. This has been roundly critised for its lack of feel and the peculiar angle of the keys. It would appear that in the future users will have little choice in terms of keyboard style.

If you're looking for a real bargain you may be able to find the 48K model in the shops at a good discount. Sinclair has ceased to recommend a price for this machine and some London stores are offering them at under £100. Chances are that prices could fall even lower.

Those who want to add the Plus keyboard to their 48K models can now do so, as Sinclair is offering an upgrade kit. If you feel computing should be a do it yourself hobby, you can purchase the kit for £20. Those with more nervous fingers should send their computer to Sinclair and will be charged £30.

Sinclair Research, Stanhope Rd, Camberley, Surrey

Price slashed to £129.95

Acorn squashes rumours

From front page

about sales of the Electron which were 25% less than we had predicted', Mr Curry admitted. 'But the BBC is still selling at a very high level and our stocks are normal'.

At the same time he announced a range of price cuts and incentives. The Electron has been slashed by £70 to £129, making it a direct competitor with the Spectrum Plus. This move had been expected since the Electron was launched and means the machine will be much more attractive for users at home and in education.

There is also to be a trade in scheme on the BBC micro. Anyone taking any type of computer into an Acorn dealer will be able to claim £50 off the price of a new BBC. Chris Curry announced there will be no recommended retail price on the machine so this offer can be deducted from the best price the buyer can find.

BBC machines have been selling as low as £349 so this could mean you can carry away a BBC for less than £300 if you have a computer to trade. Asked what Acorn would be doing with all this hardware, Chris Curry suggested they might be able to sell them at a profit, otherwise they were looking for a large hole.

Schools are also to benefit from Acorn's largess. The Acorn Micros in Schools Scheme will continue where the DOI Micros in Schools scheme left off. Under this new incentive schools will be able to get Acorn micros cheaper and in special packs. A number of these packages will be based on the Electron and this will be more attractive when Econet is released.

Despite all this squashing of rampant rumour Chris Curry would not give any details about the new improved BBC. He confirmed its existence, but refused to give firm dates or details. Rumour suggests it will have 32K of user RAM with special 'shadow RAM' to cope with the screen memory requirements in any mode. This would bring the BBC in line with some of the more modern machines.

Mr Curry was keen to emphasise Acorn's policy of software compatibility. 'Our users are very secure in that respect', he claimed. With over 700,000 Acorn computers currently being used this will be of great interest to BBC owners and especially to schools, of which some 70 per cent have BBC machines.

Acorn, Cherry Hinton, Cambridge

Apologies

Calling all winners of the Palace and Warwick competitions.

Due to an unfortunate clerical error the prizes for these competitions have been despatched to the wrong addresses.

If you were a winner in either of these competitions, please would you return to our editorial address any software which has been sent to you, giving full details of your name and address so that we can send you the correct prize.

We apologise to readers, Palace and Warwick for any inconvenience caused.

Titanic dream

Tomorrow's Dream is a new software house, based in Bristol. It's first release is Titan, a debugging monitor utility for the BBC. The company specialises in utilities for both the BBC and Spectrum.

Titan costs £10 and £12 on cassette and disc respectively.

Tomorrow's Dream, Richmond Hse, 1B Sydenham Rd, Bristol BS6 5SH

Hard nut to crack

Tower of Despair, from Games Workshop, is apparently causing just that to the authors. Adventurers have been finding it a hard nut to crack, and subsequently pestering Russell Clarke and Mike McKeown for help.

To save themselves, and of course Tower players, more hours of explanations and advice, the duo has put together a hints leaflet. This is available free, with an SAE, from Mail Order Dept, Games Workshop, 27/29 Sunbeam Rd, London NW10.

The Key of Hope, no doubt the remedy to despair, will be released by Games Workshop in March. It's the follow-up to Tower of Despair.

Raid on MSX

Two popular games by Activision have been converted to run on MSX computers. Pitfall II features Pitfall Harry and his sidekick Quickclaw in search of Harry's niece Rhonda. In River Raid, tanks, choppers, ships and jets try to prevent you destroying the supply bridges on the river.

These are Activision's first MSX titles and they both cost £11.95.

Activision, 5/7 Forlease Rd, Maidenhead, Berks SL6 1RP

Combat, Karn and crime

Interceptor Micros has released three new games, two for the C64 and one for the VIC-20.

The Commodore games are Front Line and Empire of Karn. Front Line places you at the controls of the Death Tank Interceptor, which has exceptionally strong armour plating and self-repair capabilities. You must reach captured supply dumps, defending yourself against enemy air and land superiority.

Empire of Karn is the sequel

to heroes of Karn and continues the story as you try and save the empire from Zhef. Both C64 titles cost £7.

Villain for the VIC-20 costs £6, and it's an arcade game. You take the part of the villain embarking on a life of crime. Watch out for the relentless PC Plodd on your trail!

Interceptor Micros, Lindon Hse, The Green, Tadley, Hants

Using Europe

Kosmos, a software house specialising in educational software, has launched a new program called Identify Europe for the BBC and Electron.

The program is suitable for all ages, including adults, and Kosmos claims it is both entertaining and instructive. Questions are based on a multiple choice format and follow Kosmos' philosophy of instructing the user even when an incorrect answer is entered.

Priced at £7.95 for the BBC and Electron version, Kosmos is planning Spectrum and C64 versions later in the year.

Kosmos, 1 Pilgrims Close, Harlington, Dunstable, Beds LU5 6LX

Spectrum/C64 first

Orpheus has just released its first program for the Spectrum. The game is called Underworld — The Village, and is a text adventure. A newspaper cutting puts you on the trail of hidden treasure, danger and numerous puzzles, all in the setting of a sleepy village.

Written using the Quill, the adventure features 150 locations and is priced at £4.95.

Orpheus has also released Megabase, a database system for Oric 1/Atmos and CBM 64. It is Orpheus' first CBM 64 product.

The program is available on cassette and disc in a ring binder with a comprehensive manual. It costs £24.95 on the CBM 64 and £17.95 on the Oric-1/Atmos.

Orpheus, The Smithy, Unit 1, Church Farm, Hatley St George, Nr Sandy, Beds SG19 3HP

Dr Beeb

BBC computers being used at Edenhall Hospital

BBC micros have found their way into the world of medicine. At Edenhall Hospital in Scotland they are being used to give disabled patients training in skills using specialist software.

Dr Graham Creasey, from Edenhall's Spinal Unit, said: 'They make life more pleasant and provide some hope for future employment.'

The BBC computers are also being used in a long-term research project connected with the nervous system. It is hoped that this will eventually lead to success in enabling paralysed people to walk.

Acorn Computers, Fulbourn Rd, Cherry Hinton, Cambridge CB1 4JN

Tandata drop

Tandata Marketing's Tm200 multi baud rate modem has been reduced in price from £217 to £173, excluding VAT.

Roy Pendleton, Tandata managing director, said: 'The price cut has been made possible by the increased volume of production and sales throughout our product range which enables us to pass on the benefit to our customers.'

Tandata, 34 Ellerker Gdns, Richmond, Surrey TW10 6AA

Champion challenge

For those who feel capable of challenging a world champion, Martech is releasing Brian Jacks' Superstar Challenge in March.

Based on the popular TV series, Superstars, the game gives you the chance to compete against Brian Jacks, world famous judo expert and Superstars champion. You can take part in eight events including squat thrusts, canoeing and football.

The game costs £7.95 on the Spectrum, BBC, Electron and Amstrad and £8.95 on the Commodore 64.

Also in March, Martech is releasing the Living Body, a package based on Channel 4's medical series of the same name. The pack contains six programs including Getting to Know Your Insides, Heart Operation and So You Think You Can Breathe. There is also a 32-page full colour booklet.

It will be available for the Spectrum, Commodore 64, BBC and Electron priced at £19.95. C64 and BBC disc versions will cost £24.95.

Free tape

Micro Dealer UK is offering a £5.95 Azimuth Alignment Tape free with every Omega Data Recorder.

According to Micro Dealer, the Omega offers a higher level of reliability than other recorders and has a digital tape counter and external remote control as standard. There is also a built-in microphone and the facility to use an external one.

The Omega is priced at £24.95 and is available only from Micro Dealer.

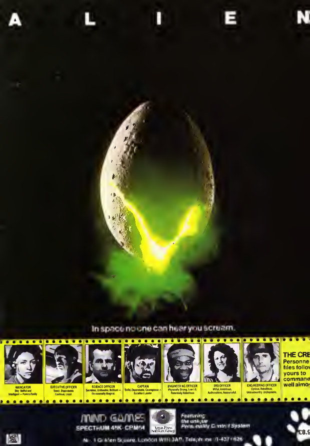
Micro Dealer UK, 29 Burrowfield, Welwyn Garden City, Herts AL7 4SS

Winners all

There were seven game titles hidden in our Bug-Byte wordsquare. Here are the names of the 45 winners: P Saull, Ongar; G Jones, Glasgow; R J Henthorn, Newport; C Huckins, London; J Hughes, Manchester; S Brown, Exmouth; M McIntyre, Newport; B Laing, Aberdeen; D Hamilton, Glasgow; G Taylor, West Germany; F Rickshaw, Coventry; J Bell, Gosport; E Mason, Hove; E Haggerty, Blyth; A C Williamson, Brighton; J Dobson, Manchester; E C Jones, Coventry; A Lewis, Winsford; P F Gunner, Farnham; M Siemaszkiewicz, London; A Jones, London; S Wu, London; D Robson, Derby; P Websdale, Dereham; C F Brown, Leeds; P Gasan, Stroud; J Humphries, Aveley; A Button, Hull; T Pears, Gateshead; D Thorpe, Exeter; J Brewin, Glen Parva; R Miller, Newcastle upon Tyne; H K H Mistry, London; M Johns, Hove; D Anderson, Glasgow; M Aldorino, Gibraltar; C J Kay, Ashton under Lyme; C Barnes, Nottingham; A Hughes, Barnsley; D Smith, Melton Mowbray; J Marsh, Bristol; W Sisson, Wolverhampton; A May, Scotland; M Jones, Towcester; D E Nicholls, London.

Well done!

There were eight differences to spot in our Death Star competition. Here are the names of the 30 winners: J D Thompson, Tidworth; D Quay, Camberley; R Mackenzie, Rochdale; J M Dawson, Middlesborough; S Ackerman, Mitcham; D Richards, London; P Crawley, Hanworth; P Leach, London; L Perry, London; D Schreiber, Chelmsford; D Weerasinghe, London; S Timmons, Poulton le Fylde; J W Chaplin, Bristol; J Walden, Belgium; N Williams, London; K Maghadam, London; J Hayward, Heckmondwike; R Pettigrew, Cheshire; M R Collins, Isle of Wight; A Towers, Blackpool; P Powley, King's Lynn; K Liddell, Grimsby; K W Peterson, Liverpool; N Parkles, Burnley; S Donne, Upminster; A Shirley, Leicester; D A Parish, West Wickham; P Wainwright, Durkar; S Wright, Fife; R Banks, London.


A L I E N
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ENGINEERING OFFICER
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3RD OFFICER
Witty, Ambitious, Authoritative, Resourceful.

ENGINEERING OFFICER
Cynical, Rebellious, Untrustworthy, Unpredictable.

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Have dinner at Wally's and take home a bag of Mikro-Gen goodies. There are 47 prizes in all

Design a Wally

THIS WEEK we've joined forces with Mikro-Gen to bring you an entirely new type of competition. If you own a Spectrum, C64 or Amstrad CPC464 then you could win a fantastic prize from Mikro-Gen.

Wally is preparing to star in another great game which will have you glued to your screen for hours. It's called Everyone's a Wally and will cost £9.95. You could be the first person to join him in his latest feats.

To enter you will need a bit of artistic talent, plenty of imagination and a really funny sense of humour. Do you qualify? Then read on.

We want you to design a badge or sticker featuring the ever popular Wally Week. It should be in a similar style to the one shown on this page, but it does not necessarily have to be an anti piracy slogan. It can be anything to do with Wally as long as it's humorous. Entries will be judged by Mikro-Gen and artistic design and humorous content will be taken into account.

The first prize is an all expenses paid day out to Mikro-Gen, where you will meet the programmers and be taken out to dinner. You will also be the first person to receive a copy of the latest Wally Week game — Everyone's a Wally — plus a selection of other Mikro-Gen titles and a copy of Everyone's a Wally and there are also 40 consolation prizes of Wally's latest game.

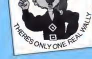
Please note that entries cannot be returned. The winning entries may be considered by Mikro-Gen for production as badges or stickers.

So get out your sketch book and start scribbling. There are 47 great prizes waiting to be claimed.

MIKRO-GEN
(0344) 427317
AUTOCROSS
Ford Race & Rally Specialists
Specialists

Wally in action at the races

Sample badge from Mikro-Gen


BEWARE OF PIRATES
THERES ONLY ONE REAL WALLY

How to enter

Design a badge featuring Mikro-Gen's Wally Week. It can be a drawing of his face or all of him, and he can be in action or expressing an attitude. You can write a suitable caption if you like.

Badges will be judged according to artistic design and humorous content. First prize is an expenses paid day out to Mikro-Gen's premises in Ashford, at a date which is mutually convenient. If you are under 16, you must be accompanied by an adult. Mikro-Gen will present the first prize-winner with the first ever copy of Everyone's a Winner, as well as a selection of Mikro-Gen games and a Wally T shirt.

Six second prizewinners will receive Wally T-shirts and Everyone's a Winner, and 40 runners up will receive Everyone's a Wally.

Entries cannot be returned. The winning entries may be considered by Mikro-Gen for production of badges or stickers.

Seal your design and coupon in an envelope. Post your entry to Mikro-Gen Competition, Home Computing Weekly, No 1 Golden Square, London W1R 3AB. Entries close at first post on Friday February 15, 1985.

You may enter as many times as you wish, but each entry must be accompanied by an official coupon — not a copy — and sealed in a separate envelope.

If you are a winner, the coupon will be used as a label to send your prize, so clear writing is essential.

The rules

Entries will not be accepted from employees of Argus Specialist Publications, Mikro-Gen and Alabaster Passmore & Sons. This restriction also applies to employees' families and agents of the companies.

The How to Enter section forms part of the rules.

Mikro-Gen Competition

Entry Coupon

Name ______________________

Address ______________________

____

____

______________ post code ______________

Age if under 16 ______________________

Computer owned (Spectrum/C64/Amstrad CPC464) ________

T-shirt size (small/medium/large) ______________

Complete clearly and fully — if you are a winner this will act as a label for your prize. Post to Mikro-Gen Competition, Home Computing Weekly, No 1 Golden Square, London W1R 3AB. Closing date: first post Friday February 15 1985. Don't forget to follow closely the advice in the How to Enter section.

Two for the price of one

This week we're giving Oric users a double treat — not one but two games. Retrieve the stolen treasure or wipe out the Atmons in this dynamic duo from Andrew Gardner

Kong

Kevin Kong has stolen your treasure chest and taken it to his skyscraper home. Your task is to retrieve it — and it won't be easy.

Kevin is rolling barrels down on you, and you must leap over them or be squashed. Jumping in the wrong place will mean getting spiked on evil-looking prongs. There are also rusty patches of scaffolding so you can't stop there. Don't fall through holes in the scaffolding, or over the edge, either.

To climb the scaffolding you must move along the ramps to the ladders and climb them by jumping once you're under them.

You must cope with a time limit: if your time runs out you lost a life. Once you've successfully climbed up a screen, Kevin climbs to the next, to face more barrels or a decreased time limit.

You start off with five lives and your control keys are: left arrow to move left, down cursor to move right and space bar to jump. When you press the space bar you jump in the direction you're facing.

Variables

X%/Y% your horizontal/vertical position
X1%/Y1% your old horizontal/vertical position
Y1$/Y2$ variables holding graphics to make up man
M%/MV% control direction in which man jumps
J% counter used when jumping
A$/B$ variables holding barrels, used for PLOTing
TL%/T time limit/remaining time on screen
LI% remaining lives
SL% starting number of barrels on screen
SC% your score
HI% hi score
F$ variables used in setting up screen

How it works

30 switch off keyclick/cursor
40-90 series of subroutines which make up the game
1000-1290 set up UDGs
2000-2630 select skill level, set variables
3000-3350 set up screen
4000-4080 move barrels, read keyboard
4120-4220 PLOT your man and barrels make screen checks
4230-4270 decrease remaining time
5000-5150 game over routine
6000-6170 you lose a life
7000-7200 screen completed routine
8000-9020 subroutines to change position of man when jumping

Hints on conversion

CLS clears screen
PAPER/INK sets background/foreground colours
PLOT x,y is equivalent to PRINT AT: places string given at column x (0-38) row y (0-26)
PLOTing a number sets a colour attribute
SCRN (x,y) returns ASCII value at position x,y
PEEK (520)/KEYS reads the keyboard
WAIT n creates a pause for n milliseconds
MUSIC/SOUND One sound commands can be replaced or removed
SPC can be replaced by TAB or removed

```
10      ** KONG **
20 REM BY A.P GARDNER
30 POKE618,10
40 GOSUB1000  UDG S
50 GOSUB2000  VARIABLES
60 GOSUB3000  SCREEN
70 GOSUB4000  GAME
80 GOSUB5000  END
90 GOTO50     RE-START
100 REM
990 REM ** USER DEFINED GRAPHICS **
1000 FORP=46080+(97*8)TOP+(18*8)+7
1010 READU:POKEP,U:NEXTP:RETURN
1020 DATA12,26,51,30,12,30,47,47
1030 DATA55,51,30,30,18,50,34,19
1040 DATA12,22,62,30,12,30,61,61
1050 DATA59,51,30,30,18,19,17,30
1060 DATA1,6,4,9,9,4,6,1
1070 DATA32,24,8,36,36,8,24,32
1080 DATA0,63,33,30,12,30,33,63
1090 DATA0,52,33,2,12,0,0,0
1100 DATA33,63,33,33,33,63,33,33
1110 DATA0,0,0,28,42,42,42,42
1120 DATA0,31,32,63,33,33,32,63
1130 DATA0,62,1,63,33,1,1,63
1140 DATA0,0,0,12,30,45,63,51
1150 DATA0,0,7,15,30,27,51,35
1160 DATA30,12,63,63,63,12,63,63
1170 DATA0,0,56,60,30,54,51,49
1180 DATA55,0,3,3,7,6,15,31
1190 DATA63,63,63,45,0,0,0,0
1200 DATA33,0,48,48,56,24,60,62
1990 REM ** VARIABLES **
2000 CLS:PAPER4:INK0
2010 PRINT:PRINT:PRINT"WHAT BARREL LEVEL (0-2)"
2020 PRINT"(0 IS THE EASIEST)
2030 PRINT:INPUTBL%
```

```
2040 IFBL%<0ORBL%>2THEN2000
2050 CLS
2060 PRINT:PRINT:PRINT"WHAT TIME LIMIT (12-5)"
2070 PRINT"(12 IS THE EASIEST)"
2080 PRINT:INPUTTL%
2090 IFTL%<5ORTL%>12THEN2050
2100 TL%=TL%*10
2110 LI%=5:SC%=0
2120 F$="cccccccccccccccccccccccccccccccc"
2500 BL%=BL%+1
2510 IFBL%>3THENBL%=1:TL%=TL%-10
2530 IFBL%=1THENA$="              af
2540 IFBL%=2THENA$="af            af
2550 IFBL%=3THENA$="af        af        af
2560 B$=A$
2600 T=TL%
2610 X%=4:Y%=23:X1%=4:Y1%=23
2620 J%=0:Y1$="e":Y2$="b":M%=1:H%=0
2630 RETURN
2990 REM ** SET UP SCREEN **
3000 CLS:PAPER0:INK6
3010 PLOT12,1,"g  l     g     l   l"
3020 PLOT12,2,"g  l     g     l   l"
3030 PLOT6,3,"m      g  l kl  g     l   l"
3040 PLOT5,4,"nmp    gggggggggg     l   l"
3050 PLOT3,5,"qro    g          l    j   j"
3060 PLOT2,6,"gggggggggggg"
3070 PLOT3,7,"g":PLOT3,8,"g   "+A$
3080 PLOT3,9,"g"+F$:PLOT31,9,"hh":PLOT31,9,"hh"
3090 PLOT11,10,"j        j":PLOT29,10,"j     j"
3100 PLOT6,13,A$
3110 PLOT5,14,F$:PLOT12,14,"hh":PLOT23,14,"hh"
3120 PLOT5,15,"i       j    j":PLOT25,15,"j     j"
3130 PLOT6,18,A$
3140 PLOT4,19,F$:PLOT31,19,"hh
3150 PLOT11,20,"j        j":PLOT28,20,"j     j"
3160 PLOT4,23,A$
```

```
3170 PLOT4,24,F$:PLOT20,24,"hh"
3180 PLOT4,22,"a":PLOT4,23,"b"
3190 PLOT3,26,"LIVES":PLOT8,26,STR$(LI%)
3200 PLOT14,26,"SCORE 0"
3210 PLOT20,26,"TIME"+STR$(T):PLOT32,26,5
3220 INK3
3230 FORQ=1TO3
3240 PLOT11,Q,1:PLOT13,Q,5:PLOT16,Q,7:PLOT19,Q,1:PLOT2
2,Q,2
3250 NEXTQ
3260 PLOT4,3,4
3270 FORQ=4TO5
3280 PLOT4,Q,4:PLOT11,Q,1:PLOT22,Q,2
3290 NEXTQ
3300 PLOT13,8,2:PLOT1,6,1:PLOT2,7,1:PLOT4,7,3:PLOT2,8,
1:PLOT4,8,3
3310 FORQ=9TO24STEP5
3320 PLOT1,Q,1:PLOT1,Q+1,2
3330 NEXTQ
3340 PLOT1,26,5
3350 RETURN
3990 REM ** THE GAME **
4000 A$=RIGHT$(A$,27)+LEFT$(A$,1)
4010 B$=RIGHT$(B$,1)+LEFT$(B$,27)
4020 IFJ%>0THEN4100
4030 PX=PEEK(520)
4040 IFPX=172THENXX=XX-1:MX=-1:Y1$="c":Y2$="d"
4050 IFPX=188THENXX=XX+1:MX=1:Y1$="a":Y2$="b"
4060 IFPX=132THENJ%=1:MV%=MX
4070 IFPX=180THENJ%=1:MV%=0
4080 IFPX<>56THENSC%=SC%+1
4100 ONJ%GOSUB8000,8500
4110 IFXX<13ANDYX=8THENXX=13
4120 PLOTX1%,Y1%-1," ":PLOTX1%,Y1%," "
4130 PLOT6,8,B$:PLOT6,18,B$
4140 PLOT6,13,A$:PLOT6,23,A$
4150 IFSCRN(XX,YX)<>32THEN6000
4160 IFSCRN(XX,Y%-1)<>32THENHX=1:GOTO6000
4170 PLOTXX,YX-1,Y1$:PLOTXX,YX,Y2$
4180 X1%=XX:Y1%=YX
4190 BRX=SCRN(XX,YX+1)
4200 IFBPX=32ANDJ%=0THEN9000
4210 IFBRX=104THENPLOTXX,YX+1," "
4220 IFYX=3THEN7000
4230 T=T-.3335:TX=T
4240 PLOT32,26,STR$(TX)+" ":PLOT32,26,3
4250 PLOT19,26,STR$(SC%):PLOT19,26,5
4260 IFTX<1THENPLOT12,14,"OUT OF TIME":GOTO6000
4270 GOTO4000
4990 REM ** YOU RE FINISHED **
5000 WAIT100
5010 IFSC%<HI%+1THEN5060
5020 CLS:K$=KEY$
5030 PRINT:PRINT:PRINT"WHAT IS YOUR NAME (MAX 13 CHARS
)":INPUTN$
5040 IFLEN(N$)>13THEN5020
5050 HI%=SC%
5060 CLS
5070 PRINT:PRINT:PRINTSPC(4)"KONG S TAKEN ALL YOUR LIV
ES"
5080 PRINT:PRINT:PRINTSPC(10)"YOU SCORED ";SC%
5090 IFN$<>""THENPRINT:PRINT"HIGH SCORE IS "HI%"BY "N$
5100 PRINT:PRINT:PRINTSPC(9)"ANOTHER GAME (Y/N)"
5110 K$=KEY$
5120 GETK$
5130 IFK$="Y"THENRETURN
5140 IFK$<>"N"THEN5110
5150 CLS:END
5990 REM ** YOU RE KILLED **
6000 FORQ=10TO1STEP-1
6010 MUSIC1,2,Q,9
6020 NEXTQ:MUSIC1,1,1,0
6030 FORQ=1TO5
6040 PLOTXX,YX-1,"a":PLOTXX,YX,"b"
6050 WAIT70
6060 PLOTXX,YX-1,"c":PLOTXX,YX,"d"
6070 WAIT20:NEXTQ
6080 PLOTXX,YX-1," ":PLOTXX,YX," "
6090 IFHX=1THENPLOTXX,YX-1,"$":HX=0
6100 PLOT12,14,"hhgggggggg"
6110 PLOT21,9,"hh":PLOT31,9,"hh":PLOT12,14,"hh"
6120 PLOT23,14,"hh":PLOT31,19,"hh":PLOT20,24,"hh"
6130 LI%=LI%-1
6140 IFLI%<1THENRETURN
6150 PLOT8,26,STR$(LI%):PLOT8,26,0
6160 GOSUB2600
6170 GOTO4000
6990 REM ** YOU VE DONE THE SCREEN **
7000 WAIT100:FORQ=1TO3
7010 PAPERQ
7020 FORP=1TO10
7030 SOUND1,(RND(1)*500)+100,10
7040 NEXTP
7050 FORP=2000TO5000STEP50
7060 SOUND1,P+800,10
7070 SOUND1,P,10
7080 SOUND1,P-500,10
7090 NEXTP:SOUND1,1,0:WAIT50
7100 NEXTQ
7110 CLS:PAPER7:INK0
7120 PRINT:PRINT:PRINTSPC(3)"ANOTHER TREASURE CHEST FO
R YOU"
7130 PRINT:PRINT:PRINTSPC(5)"KONG GOT WORRIED AND LEFT
 "
7140 PRINT:PRINT:PRINT:PRINTSPC(5)"PRESS A KEY TO FOLL
OW HIM"
7150 K$=KEY$
7160 GETK$
7170 HC%=SC%+200
7180 GOSUB2500
7190 GOSUB3000
7200 GOTO4000
8000 YX=YX-2:J%=2
8010 IFSCRN(XX,YX-1)=105THENYX=YX-3:J%=0
8020 RETURN
8500 YX=YX+2:XX=XX+MV%:J%=0
8510 RETURN
9000 PLOTXX,YX-1," ":PLOTXX,YX," "
9010 YX=YX+1
9020 GOTO4000
```

Hyper-Trek

The Atmons have penetrated the empire's defences and it is your mission to wipe them out.

At the start a map will be displayed showing the positions of the enemy and your mother ship (a circled F)

After keying in co-ordinates you will be transported to that sector, and after destroying the five enemy ships press [M] (pressing [M] at any time returns you to the map)

You'll probably need to refuel during your mission This is done by a jump to your mother ship's position Once there, aim for the centre of the ship, using the left/right game keys

You lose power, and points, when you're hit and the amount lost depends whether it was a direct hit or a deflection.

Your final score is based on the time your mission took with extra penalties for hits If you reach zero power you are destroyed

Your control keys are left arrow for left, down arrow for right and up arrow for fire.

How it works

30-70 the game in a series of subroutines
1000-1120 sets up user defined graphics
2000-2230 initialise variables
3000-3350 set up map, INPUT co ordinates
4000-4080 move enemy ship
4090-4160 read keyboard, make adjustments
4170-4200 reduce power and score
5000-5060 you fire, check for hit
5500-5610 enemy is hit, reduce totals
6000-6430 enemy fires, check for hit
6500-6560 you're hit, reduces score and power
7000-7110 set up combat screen
8000-8420 refuel stage
9000-9560 subroutines to POKE title status line and PLOT stars, end game routine

Variables

Y%/Y1% your new/old horizontal position
PW% your remaining power
E%/E1% new/old horizontal position of enemy
E2% horizontal position of enemy missile
F% counter used in enemy fire routine
G%(N) array holding position of enemy/your mothership
SP%(N) amount of enemy ships in each position
N% remaining number of sectors occupied by the enemy
SC% your score
X,Y INPUT variables for co-ordinates
T$ variable holding screen title

Hints on conversion

CLS, clears screen
PAPER/INK sets background/foreground colours
PLOT x,y equivalent to PRINT AT, places the string given at column x (0-38), row y (0-26) PLOTing a number sets a colour attribute
SCRN (x,y) returns the ASCII value at position x,y
PEEK (520)/KEY$ reads keyboard
WAIT n creates a pause for n hundredths of a second
SHOOT/EXPLODE/ZAP are sound commands and can be replaced or removed

```
10 REM ** HYPER-TREK **
20 REM ** BY A.P.GARDNER
30 GOSUB1000  UDG S
40 GOSUB2000  VARIABLES
50 GOSUB3000  MAIN GAME
60 GOSUB10000 END OF GAME
70 RUN40
100 REM
990 REM ** USER DEFINED GRAPHICS **
1000 PRINTCHR$(17);CHR$(6)
```

```
1010 FORP=46080+(97*8)TO46087+(106*8)
1020 READU:POKEP,U:NEXTP:RETURN
1030 DATA0,0,1,3,1,0,0,0
1040 DATA12,63,63,63,63,63,0,45
1050 DATA0,0,32,48,32,0,0,0
1060 DATA0,1,1,1,2,2,0,0
1070 DATA45,30,12,12,30,30,30,30
1080 DATA0,32,32,32,16,16,0,0
1090 DATA28,28,62,62,42,42,42,8
1100 DATA30,33,40,41,45,41,33,30
1110 DATA63,63,63,63,63,63,63,63
1120 DATA0,8,8,8,8,42,20,8
1990 REM ** SET UP VARIABLES **
2000 DIMB%(49):DIMSP%(49)
2010 FORQ=1TO7
2020 C%=INT(RND(1)*49)+1
2030 IFB%(C%)=1THEN2020
2040 B%(C%)=1:SP%(C%)=0
2050 NEXTQ
2060 C%=INT(RND(1)*49)+1
2070 IFB%(C%)=1THEN2060
2080 B%(C%)=2
2090 PW%=8000:N%=7
2100 Y%=17:Y1%=17
2200 C%=INT(RND(1)*2)
2210 IFC%=0THENE%=3:E1%=3:GOTO2230
2220 E%=34:E1%=34
2230 RETURN
2990 REM ** SPACE MAP **
3000 CLS
3010 PAPER0:INK6
3020 T$="SPACE MAP "
3030 GOSUB9000
3040 PLOT12,3,"<- - - X - - ->"
3050 PLOT13,5,"1 2 3 4 5 6 7"
3060 PLOT13,6,"-------------"
3070 PLOT9,7,"^ 1| | | | | | | |1"
3080 PLOT9,9,"| 2| | | | | | | |2"
3090 PLOT9,11,"| 3| | | | | | | |3"
3100 PLOT9,13,"Y 4| | | | | | | |4"
3110 PLOT9,15,"| 5| | | | | | | |5"
3120 PLOT9,17,"| 6| | | | | | | |6"
3130 PLOT9,19,"| 7| | | | | | | |7"
3140 PLOT13,20,"-------------"
3150 PLOT13,21,"1 2 3 4 5 6 7"
3160 FORQ=8TO18STEP2
3170 PLOT12,Q,"|-+-+-+-+-+-+-|"
3180 NEXTQ
3190 PLOT13,24,"POWER"+STR$(PW%)
3200 PLOT12,24,2:K$=KEY$:C%=1
3210 FORY=7TO19STEP2
3220 FORX=13TO25STEP2
3230 IFB%(C%)=1THENPLOTX,Y,"g"
3240 IFB%(C%)=2THENPLOTX,Y,"h"
3250 C%=C%+1
3260 NEXTX,Y
3270 PAPER4:INK7
3280 PRINTCHR$(30)
3290 INPUT"ENTER NEXT SECTOR IN FORM OF-    X,Y ";X,Y
3300 IFX<1ORY<1ORX>7ORY>7THEN3280
3310 S%=((Y-1)*7)+X
3320 IFSCRN((X*2)+11,(Y*2)+5)=104THEN8000
3330 GOSUB2100
3340 GOSUB7000
3350 GOTO4000
3990 REM ** MAIN GAME **
4000 IFSP%(S%)<1THEN4080
4010 M%=INT(RND(1)*2)
4020 IFM%=0ANDE%>3THENE%=E%-1
4030 IFM%=1ANDE%<34THENE%=E%+1
4040 IFRND(1)>.8ANDF%=0THENF%=1
4050 PLOTE1%,6," ":PLOTE1%,7," "
4060 PLOTE%,6,"g"
4070 E1%=E%
4080 ONF%GOSUB6000,6100,6200,6300,6400
4090 P%=PEEK(520)
4100 IFP%=172ANDY%>2THENY%=Y%-1:PW%=PW%-1
4110 IFP%=180ANDY%<33THENY%=Y%+1:PW%=PW%-1
4120 IFP%=156THEN5000
4130 IFP%=150THEN3000
4140 PLOTY1%,20,"   ":PLOTY1%,21,"   "
4150 PLOTY%,20,"abc":PLOTY%,21,"def"
4160 Y1%=Y%
4170 PW%=PW%-1:SC%=SC%+2
4180 PLOT18,24,STR$(PW%)+" "
4190 IFPW%<1THENPLOT12,14,"OUT OF POWER":WAIT400:RETUR
N
4200 GOTO4000
4990 REM ** YOU FIRE **
5000 ZAP:PW%=PW%-5
5010 IFSCRN(Y%+1,6)=32THEN4130
5020 SP%(S%)=SP%(S%)-1
5030 IFSP%(S%)<1THENB%(S%)=0:N%=N%-1
5040 GOSUB5500
5050 IFN%<1THENPLOT9,14,"MISSION COMPLETED":WAIT400:RE
TURN
5060 GOTO4130
5490 REM ** ENEMY IS HIT **
5500 SHOOT
5510 PLOTE%,7," "
5520 FORQ=1TO5
5530 PLOTE%,6,"*":WAIT10
5540 PLOTE%,6,"#":WAIT10
5550 PLOTE%,6,"!":WAIT10
5560 NEXTQ
5570 EXPLODE
5580 PLOTE%,6," "
5590 IFF%<3THENF%=0
5600 GOSUB2200
5610 RETURN
5990 REM ** PLOT ENEMY FIRE **
6000 PLOTE%,7," "
6010 F%=2:RETURN
6100 PLOTE%,7,"!"
6110 F%=3:RETURN
6200 E2%=E%
6210 PLOTE2%,12,"!"
6220 F%=4:RETURN
6300 PLOTE2%,12," "
6310 PLOTE2%,19,"!"
6320 F%=5:RETURN
6400 PLOTE2%,19," "
6410 F%=0
6420 IFSCRN(E2%,20)<>32THEN6500
6430 RETURN
6490 REM ** YOU RE HIT **
6500 PAPER7
6510 EXPLODE
6520 WAIT10
6530 PAPER0
6540 PW%=PW%-600:SC%=SC%+100
6550 IFE%=Y%ORE%=Y%+2THENPW%=PW%+400:SC%=SC%-70
6560 RETURN
6990 REM ** SET UP SCREEN **
7000 CLS
7010 PAPER0:INK0
7020 T$="  COMBAT  "
7030 GOSUB9000
7040 GOSUB9500
7050 PLOTY%,20,"abc":PLOTY%,21,"def"
7060 PLOT13,24,"POWER"
7070 INK3
7080 PLOT1,6,1:PLOT1,7,6
7090 PLOT1,20,7:PLOT1,21,7
7100 PLOT1,24,3
7110 RETURN
7990 REM ** REFUEL STAGE **
8000 CLS
8010 PAPER0:INK0
8020 T$="  REFUEL  "
8030 GOSUB9000
8040 PLOT2,1,"iiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii"
8050 PLOT5,2,"iiiiiiiiiiiiiiiiiiiiiiiiiiiiii"
8060 PLOT12,3,"iiiiiiiiiiiiiii"
8070 FORQ=4TO6
8080 PLOT18,Q,"iii"
8090 NEXTQ
8100 GOSUB9500
8110 PLOT14,7,"---    --"
8120 FORQ=1TO6
8130 PLOT1,Q,3
8140 NEXTQ
8150 PLOT1,7,1
8160 INK3
8170 C%=INT(RND(1)*2)
8180 IFC%=0THENY%=4:Y1%=4:GOTO8200
8190 Y%=30:Y1%=30
8200 PLOTY%,25,"abc":PLOTY%,26,"def"
8210 WAIT200
8220 FORQ=24TO7STEP-1
8230 P%=PEEK(520)
8240 IFP%=172ANDY%>4THENY%=Y%-1
8250 IFP%=180ANDY%<30THENY%=Y%+1
8260 PLOTY1%,Q+1,"   ":PLOTY1%,Q+2,"   "
8270 PLOTY%,Q,"abc":PLOTY%,Q+1,"def"
8280 Y1%=Y%:WAIT(50-Q)
8290 SC%=SC%+2
8300 NEXTQ
8310 IFY%<>18THEN8370
8320 SHOOT
8330 PLOT6,24,"REFUELING IS IN PROGRESS"
8340 WAIT200:PW%=PW%+8000:IFPW%>24000THENPW%=24000
8350 PLOT6,24," REFUELING IS COMPLETED ":PLOT13,26,"PR
ESS (M)"
8360 P=PEEK(520):IFP=130THEN3000
8365 GOTO8360
8370 EXPLODE
8380 SC%=SC%+100
8390 PLOT7,24,"YOU CAN'T DOCK THERE!!"
8400 PLOT7,26,"PRESS (M) TO TRY AGAIN"
8410 P=PEEK(520):IFP=130THEN8000
8420 GOTO8410
8990 REM ** TITLE OR STATUS LINE **
9000 C%=1
```

ORIC/ATMOS PROGRAMS

```
9010 FORQ=48014TOQ+9
9020 POKEQ,ASC(MID$(T$,CX,1)):CX=CX+1
9030 NEXTQ
9040 RETURN
9490 REM ** PLOT STARS **
9500 FORQ=1TO20
9510 X=(RND(1)*37)+2
9520 Y=(RND(1)*13)+7
9530 PLOTX,Y,"."
9540 NEXTQ
9550 RETURN
9990 REM ** YOU SUCCEED **
10000 IFPW%<1THEN10800
10010 CLS
10020 PAPER6:INK0
10030 PRINT:PRINT"MESSAGE ARRIVING ON VID-PRINT..."
10040 WAIT100
10050 PRINT:PRINT"CONGRATULATIONS ON COMPLETING THE"
10060 PRINT"MISSION."
10070 SC%=3500-SC%
10080 PRINT:PRINT"YOU HAVE A RANK OF ";
```

```
10090 IFSC%>2000THENPRINT"SPACE COMMANDER":GOTO10140
10100 IFSC%>1400THENPRINT"GROUP LEADER":GOTO10140
10110 IFSC%>700THENPRINT"SPACE PILOT":GOTO10140
10120 IFSC%>0THENPRINT"CADET":GOTO10140
10130 PRINT"COSMIC CLOT"
10140 PRINT:PRINT"BASED ON YOUR LAST RATING, ( ";SC%;"
)"
10150 GOTO10550
10490 REM ** YOU FAIL **
10500 CLS
10510 PAPER0:INK7
10520 PRINT:PRINT"MESSAGE FROM VID-PRINT    "
10530 PRINT:PRINT"WHAT A DISGRACE TO THE CORE !!"
10540 PRINT"IT S A DISMISSAL FOR YOU  PILOT "
10550 PRINT:PRINT:PRINT"ANOTHER GO (Y/N)"
10560 K$=KEY$
10570 GETK$
10580 IFK$="Y"THENRETURN
10590 PRINTCHR$(17);CHR$(6):PAPER7:INK0
10600 END
```

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1984 Hi-score

In the first of a series, one of our regular BBC reviewers gives the thumbs up and thumbs down to the most memorable Beeb games of 1984

The life of a software reviewer is an enjoyable one We receive copies of all the new programs as soon as they're released Throughout the past I have played the majority of BBC games Some memorable, but others I couldn't wait to file under B for bin

It was with great pleasure that I accepted the chance to categorize 1984's BBC programs for HCW It presented an opportunity to sift through my large box of cassettes and play some of the games which had impressed me throughout the year

Best adventures

On the adventure front the conversion of Melbourne's Spectrum spectacular The Hobbit was a breakthrough, despite the lack of graphics I have always believed, regarding adventures, that a word is worth a thousand pictures

The ability to enter commands in complete English sentences, and the interaction between charectere, earns The Hobbit the rating of best adventure and also confirms my suspicions that Thorin, the singer about gold, was a wally

Best utility program

There are many disc and cassette based utility programs available for the BBC However, when you are in the middle of producing a masterpiece of programming, the last thing you want to do is stop and load a utility program For this reason I decided that the winner of this category should be a ROM But which ROM? I was forced to eliminate some of the excellent disc orientated ROMs as these are of limited use to a large proportion of Beeb users

As an excellent example of a BASIC programmer's utility ROM I chose Beebug's Toolkit ROM Other ROMs contain identical utilities, but Toolkit presents its information so clearly that it won on style

Best space game

Now down to the nitty gritty Here is a game which can be relied upon to sort the men from the boys Programmed by Orlando, who went on to write Frak!, we have Aardvark's Zalaga

Zalaga is born of the old school of arcade games, with wave after wave of aliens pouring from the sky in galaxian fashion Apart from the excellent graphics the appeal lies in the fact that until you've played the game for several days you won't get past the fourth screen These bad guys are mean!

Best graphics

Zaxxon, as most arcaders know, is one of the most complex, diagonal scrolling, 3D, shoot-em-up games of all time I was so overcome with excitement when I first saw Pace's Fortress on the Beeb that I went out and bought a copy This is almost unheard of among software reviewers

The only thing Fortress lacks is the abundant colour of the original, but this was a small price to pay for such a game

Cutest program

Frak! was a difficult game to place I would have liked to give it the best graphics award, but felt that by placing it in the Cute class I could give someone else a chance

Cute seemed a much more apt category for Frak! as it summed up the whole appeal of the game Here was an opportunity to hang up your laser cannon and wander around the wilderness knocking off monsters with your yoyo

Worst program

Micropower is currently one of the leading producers of top quality games for the BBC Earlier in the year things weren't so rosy One memorable program was a game called Positron To call it bad was a compliment The game was a retrograde step from Space Invaders A cloud of low resolution shapes moved from side to side, you shot them down and they were replaced by another cloud of monotonous monstrosities Reviewing can be purgatory at times!

Worst Taste

One recent release is a prime candidate for this category The Evil Dead from Palace Software is one of the first computer nasties to hit the small screen

Hack at the mutants with any available weapon, but watch out because the disembodied head and limbs are out for revenge! A second rate game, sold with first class advertising

Very best program

The winner of this category isn't so much a game as a way of life I rarely play a game once I've reviewed it For Acornsoft's Elite I made an exception, an exception which has lasted for the past two months I don't know whether it is the shrewd wheeling and dealing, the thrill of the gun running, or the sheer exhilaration of single handedly annihilating the pirate hordes I am hooked My present rating is Deadly, but I will never be satisfied until I join the ranks of the Elite This game is pure escapism

Cult game of the year

What more can I say It's got to be Elite Take one look at any of the computer bulletin boards, they're crammed with Elite hints, tips, and boasts

My personal award

As with many other categories, this too could have been won by Elite However, I decided to give my personal award to a more lowly program Pool from Dynabyte I've played numerous pool and snooker programs on the Beeb Most have had complete sets of balls and wonderful colours, but as games they have failed Dynabyte's Pool is different The graphics are simple, but the mechanics of the game are a delight I have spent many a happy evening with friends getted thrashed at Pool

I always feel that the new year cannot hold any more suprises for the Beeb Each year I have been wrong Here's to another 12 months of innovation in 1985

Weird and wonderful

There's a real mixture of games, if you like variety. Alien intruders or action in the air

Alien
C64 + Joystick
£8.95

Mind Games, 222 Regent St, London W1R 7DB

This is the game of the film. You take command of the crew of the Nostromo as they try to rid the ship of the alien. It is extremely close to the film and can be just as spine-chilling.

The cassette was quick and easy to load and the program was presented with suitably sombre music. You choose between the full adventure or a shortened version.

The object of the game is to rid the ship of the alien and get back to earth with as many of your crew as possible. You have a map of the ship and various monitors to assist you. These will show where you are and the state of play of the crew.

At first I was disappointed as alien is neither wholly adventure nor arcade, but after playing several times I can say that this game grows on you. The sound effects add to the suspense as does the sudden arrival of the monster. **M.W.**

instructions	85%
graphics	80%
playability	80%
value for money	100%

★ ★ ★ ★

Roland Ahoy
Amstrad CPC464
£8.95

Amsoft, 169 Kings Rd, Brentwood, Essex CM14 4EF

If you write a game with a character in it and sell it to Amsoft, he will immediately become Roland. In this game our hero is a pirate, sailing the savage seas in search of treasure.

This is a manipulation game which involves quick thinking and responsive fingers. I found the keyboard control keys were set out awkwardly and that the joystick was not as easy to use as the keys. This left me in a quandry, but as both are active at all times you can change at will.

There are four screens, the first is the map around which you must steer to get ammunition. Loading is difficult as a cannon is fired at you as soon as you step off the ship.

When you get the shot you blast your way through the harbour boom to the treasure, avoiding yet more cannon. Finally you stash the treasure on the island, avoiding spiders and boulders.

In all, an interesting if rather static game which could do with a little more speed and interest. **D.C**

instructions	80%
graphics	90%
playability	80%
value for money	75%

★ ★ ★

Impossible Mission
CBM 64
£8.95

CBS, Ashbrook Hse, 3-5 Rathbone Pl, London W1

This is one of the most addictive games I have seen in recent months.

Your mission as Agent 4125 is to save the world from Elvin, the mad scientist, who has threatened the world with nuclear annihilation. You must find the security code (hidden in the furniture) and reach the control centre whilst avoiding the robots which guard the underground laboratory.

An added aggravation is that the security code is in the form of torn up computer punch cards. They have to be fitted together to give part of the password you require. You do have a pocket computer to help you.

The graphics in this game are very good, the agent's movements being reminiscent of the gymnasts in Summer Games. Every game is different, the subterranean layout changes, as does the behaviour of the robots. And for that added bonus there is a menacing voice urging the robots on. As yet I haven't finished this arcade-cum-adventure game. Maybe it is an Impossible Mission — or maybe I need to play again? **M.W.**

instructions	90%
graphics	95%
ease of use	90%
value for money	90%

★ ★ ★ ★ ★

Juice!
CBM 64
£7.95

System 3, South Bank Hse, Black Prince Rd, London SE11

Juice isn't exactly based on a new idea, being one of the Q-bert type — jumping on squares to change their colour — games. However, this has been reworked sufficiently to make it interestingly different. The blocks have been replaced by flat chessboard-like playing areas (sometimes with holes in), and the characters altered.

Juice has an electrical theme. Your character has to complete a circuit from one corner to the other by jumping on each square. Baddies have to be avoided; Killerwatt pursues you until you lure him to his death. Flash will undo your work as he jumps about, and jumping on Recharge freezes the baddies for a while.

Every now and again, the successful player reaches a bonus screen with no baddies. Here you have to complete the circuit between the opposite corners within a time limit, rather than changing every square.

I occasionally had trouble keeping my character under control but overall this is a nice variation on the theme and I enjoyed it. **P.G.**

instructions	65%
graphics	85%
playability	90%
value for money	90%

★ ★ ★ ★

Suicide Strike
CBM 64
£7.95

System 3, South Bank Hse, Black Prince Rd, London SE11

So you want to be a jet pilot? In Suicide Strike you can be six. As Squadron Leader you command planes flying through wave after wave of enemy forces on a one-way bombing mission deep into the heart of foreign territory.

The screen display is rather odd: the screen border shows the interior of a cockpit and the view through the windshield, yet this view consists of the actions of the plane you are currently flying! Interesting space-time topology, to say the least. The action is 3D. Your plane and the enemy forces cast a shadow on the ground and part of the strategy is knowing how high to fly for a particular wave: ground-hugging to take out the tanks, higher to shoot down the helicopters.

You're flying with a limited fuel supply and against the clock, so you have to trade off airspeed against fuel consumption. Your plane banks as you veer left and right, so with practice you can aim your rockets diagonally across the screen to attack the enemy.

Suicide Strike is a nice implementation and features Nova-load, so you can get it into your machine quickly. **P.G.**

instructions	65%
graphics	85%
playability	80%
value for money	80%

★ ★ ★

Insight on the Amstrad CPC464

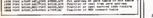
In the second of our regular series on Amstrad programming, David Ellis shows you how to set up the RSX and get it working

Last week's article explained what an RSX is and how one can be set up. This week we will set up our own RSX and get it operational.

The RSX will start at &7CFC (31996), giving us around 10K of memory to use depending upon whether the SYMBOL AFTER command is used. This downloads the character set from ROM into RAM — the lowest memory position used (SYMBOL AFTER 0) will be &A400 (41984), giving us just under 10K. The four bytes needed by the Kernal for workspace will be at &7CFC (31996) to &7CFF (31999). The machine code routine given in Table 1 will reside at &7D00 (32000) to &7D09 (32009). The RSX command table will then begin at the next byte — &7D0A (32010).

Table 1. Machine code routine for setting up RSX

Address	Mnemonic	Op Codes	(In HEX) Comment
&7D00	LD BC &7D0A	01 0A 7D	, start address of RSX table
&7D03	LD HL &7CFC	21 FC 7C	four byte buffer for Kernal
&7D06	CALL &BCD1	CD D1 BC	, call KL LOG EXT — introduces the RSX to the firmware
&7D09	RET	C9	, return from subroutine


```
1000 MEMORY &7CFA
1010 FOR x=&7D00 TO &7D09:READ a:POKE x,a:NEXT
1020 DATA 1,&A,&7D,&21,&FC,&7C,&CD,&D1,&BC,&C9
1030 POKE &7D0A,&8C:POKE &7D0B,&7E  Put address of word table to RSX table
1040 POKE &7E8A,&8C:POKE &7E8B,&7E  Position of next free word address
1050 POKE &828A,&8C:POKE &828B,&82  Position of next machine code routine
1060 POKE &7E89,&7D:POKE &7E88,&C   Position in RSX command table
```

Listing 1 is the BASIC program which will initially set up the RSX. Line 1000 sets the 'Top of BASIC' pointer to &7CFA (31994). Lines 1010 and 1020 POKE the machine code routine (Table 1) to &7D00-&7D09. The address of the Word Table will start at &7E8C (32396), and this address is POKEd into the first two bytes of the RSX command table (line 1030).

As is usual practice with Z80 machine code, the Least Significant Byte (LSE) of the address will come first, followed by the Most Significant Address (MSB) Byte. Line 1040 POKEs the start address of the Word Table to locations &7E8A/&7E8B (32394/32395). As new words are added these locations will be continually updated so that the BASIC program in listing 2 knows where to store the word names.

The machine code routines for the words will begin at &828C (33420) and line 1050 POKEs this address to &828A/&828B (33418/33419) which will also be updated by the BASIC program so that the machine code routines are placed in the correct position.

Finally, line 1060 POKEs addresses &7E88/&7E89 (32392/32393) with the place in the RSX Command Table where the first JMP will take place. These locations will also be updated when new words are added.

Figure 1 shows the complete memory layout for the RSX which may help to clarify things.

Type out listing 1 and RUN it. Make a copy of it on tape, but if all goes well this program should not be required again. When you have done this, NEW the program and type in the BASIC program in listing 1. This is a 'no frills' type of program which is split into two parts.

The first part POKEs the ASCII values of any new word you enter to the Word Table. The word can be entered in upper or lower case as it will be converted to upper case by the program. The word length should be less than 17 characters. No checks are performed for illegal characters, so be careful! This part of the program also places the JMP instruction and the address of the machine code routine for the word to the RSX Command Table. Various pointers are also updated.

The second part of the program will tell you where the machine code routine will reside in memory, and then POKE the numbers you enter to this address onwards. All the numbers should be entered in HEX, but it is not necessary to use the '&' symbol. Entering 'Q' will end the program. Entering 'W' will let you repeat the process and enter the next word etc.

Depending upon your typing skills it is a good idea to take regular copies of the RSX by entering 'S'. This will save the whole of the RSX, complete with pointers, as a binary file with the name 'NEW WORDS' (or whatever name you use). The length of the file is calculated by subtracting

Figure 1. Memory Layout for RSX

&7CFC - &7CFF four byte workspace for use by Kernal
&7D00 &7D09 machine code routine to initialise RSX

RSX Command Table

&7D0A	&8C	Address of Word Table (&7E8C)
&7D0B	&7E	
&7D0C	JMP NEW WORD 1 ROUTINE	
&7D0F	JMP NEW WORD 2 ROUTINE	
&7D12	JMP NEW WORD 3 ROUTINE	
&7E88		holds address for next
&7E89		JMP in RSX Command Table
&7E8A		holds address where next
&7E8B		WORD name is placed

Word Table

&7E8C	NEW WORD 1	
?	NEW WORD 2	
?	NEW WORD 3	
?	LAST WORD	
?	0	end of table marker
&828A		holds address where next
&828B		machine code routine starts

Machine code routines

&828C	ROUTINE FOR NEW WORD 1
?	ROUTINE FOR NEW WORD 2
?	ROUTINE FOR NEW WORD 3
&A3FF	LAST USABLE LOCATION (depending on SYMBOL AFTER)

&7D00 from the address of the last machine code number If you have any disasters (quite common when working in machine code!) then all that is needed is to load in the BASIC program, and then load in the binary file 'NEW WORDS' You can then continue from where you left off as all the pointers are contained on the file, complete with the RSX Command Table, Word Table, and the Machine Code Routines for the words If you are a really bad typist, it may pay you to modify the program so that you can check what you have entered and correct any mistakes

Now if you RUN this BASIC program we will enter the first new word Enter the word PARAMETER when prompted and then the following list of machine code numbers one at a time

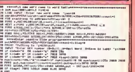
```
DD 7E  6  DD  46  5
DD 4E  4  DD  56  3
DD 5E  2  DD  46  1
DD 6E  0  C9
```

Remember to press the Return key after entering each of the numbers When you have entered all the numbers enter 'Q' to end the program Now enter (bar sign by pressing the @ key) PARAMETER and press the Return key 'Unknown command' should appear Why? Well, the RSX has not yet been 'introduced' to the firmware The short machine code program residing at &7D00 needs to be run first by entering

CALL &7D00

Now the RSX should be initialised, and if you enter (bar sign) PARAMETER this time you should return to BASIC without any 'Unknown command' message If so then the firmware has found the word PARAMETER and run the machine code routine for it Perhaps it does not appear to have done anything, but as we shall see next week it is actually a very useful word — but alas not from BASIC

If you have suffered any crashes or unexpected results then I suggest that you check all your listings very carefully The margin for error when working in machine code is *nil* You have been warned!



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Starlight exclusive

Here's a whole selection of space games including the first review of Romik's new release Captain Starlight

Astro Attack Amstrad CPC464 £8.95

Amsoft, 169 Kings Rd, Brentwood, Essex CM14 4EF

Maze chase games seem to be out of fashion so it was a surprise to find this. It is a space based maze game with you controlling a spaceship which has been transported to another time

The rulers of the land are less than friendly, playing games with their captives. You must fight for your life in the 'game grid' and the harder you fight the harder become the attacks

I find the story is much more engaging than the game itself. The more I played, the less interesting it became. The graphics are good and there are a number of engaging features such as the spinning satellites, but overall too much chase and not enough interest

The joystick isn't very positive either, which makes life rather shorter than it might otherwise have been. The keyboard controls are more positive, but they could have been sited in better positions. Overall, a game for the light of finger who like to complete sheet after sheet with little variation **D.C.**

instructions	75%
graphics	60%
playability	65%
value for money	60%

★ ★ ★

Tachyon command 48K Spectrum £6.95

Century, Portland Hse, 12-13 Greek St, London W1V 5LE

It seems that you are in the year 2534 in command of a squadron of six ships equipped with the Tachyon warp drive. That is more or less a direct quote from the inlay card

Although the warp drive was discovered two centuries ago, it looks as though someone has forgotten how to use it. The six 'ships' that I had on the screen didn't go anywhere, they only turned, in unison, to the left or to the right. Alright, they turned smoothly and quickly, but what has this to do with warp drives?

In other games, when I have used this facility, at least you get a simulation of a very fast movement to another place in the galaxy. That is the sort of thing that we have been led to believe represents this fictional warp drive

The claim on the inlay card is that this game was written by 'one of Britain's most acclaimed software writers'. Acclaimed by whom? **B.B.**

instructions	80%
graphics	80%
playability	70%
value for money	65%

★ ★ ★

Backpackers' Guide to the Universe Part 1 48K Spectrum £7.50

Fantasy, Fauconberg Lodge, 27A St Georges Rd, Cheltenham, Glos GL50 3DT

This tape is a rather odd mixture. Side one contains a guide to some of the more exotic fauna of the universe — a dozen assorted creatures with strange names and stranger habits — which is nicely presented wiht good graphics and scrolling text. Once you have studied this and absorbed the major facts about each creature you can go on to the game on side two

Here you control Ziggy the intrepid backpacker as he explores the caverns of exile on the planet Thallis collecting the creatures he will need to help in his mission to prevent the evil Scarthax from pulling the Great Plug on the universe

Many of the passages contain objects which Ziggy can collect and use to assist him. Making good use of these requires considerable experimentation. The caverns are infested by ring wraiths, which sap Ziggy's strength unless they are deflected by his flame-thrower. There's a time limit within which this part of the mission must be completed

Just flying Ziggy through the caves is quite fun, but playing the game seriously will require a lot of time and dedication **M.N**

instructions	60%
graphics	90%
playability	90%
value for money	90%

★ ★ ★ ★

Captain Starlight CBM 64 £6.99

Romik, 272 Argyll Ave, Slough SL1 4HE

This is one for those with a delicate touch, fast finger on the fire button, perfect judgement and nerves of steel. Lesser mortals can play too

As Captain Starlight, complete with jet pack, you shoot your way through the maze of the enemy's underground fortress and find and destroy its commander. Apart from keeping clear of the cavern walls, there are space mines drifting around, and contact with either looses one of your 10 lives

The mines float from left to right and back, but each time you enter a cavern their positions vary, so it's no good trying to find a set route. Even having shot up the mines, you still have to set the code on the control pad to de-activate the force field before you can move on to the next cavern

In concept it is a cross between Crazy Balloon and Scramble with a touch of originality. One niggle, there are 20 entries on the high score chart, but only the score, not the scorer's name is shown. Overall — a good game but not special enough to make the top ten **B.J.**

instructions	90%
graphics	85%
playability	85%
value for money	88%

★ ★ ★ ★

Warlords 48K Spectrum £6.95

Century, Portland Hse, 12-13 Greek St, London W1V 5LE

The inlay card states that the action in this game takes place on the planet Jupiter. If that is the case there are a lot of planets out there which look remarkably like Jupiter, or vice versa

Your most unlikely mode of transport is a hybrid ostrich which is also supposed to be a fighting machine because of its claws. I found the claws superfluous because the aliens were easily subdued when the ostrich sat on them. Because the keyboard is divided in half, two players can compete, and the controls are simple, just left, right and fly

Unfortunately the response is not too positive when you want to go left or right. Sometime after the keypress the thing decides to move, and continues to move after your finger comes off the key. This could become disconcerting should you hang around long enough to play the game. According to the inlay card I should find the game 'exciting to play, taxing my powers to the limit'. The only thing to be taxed was my patience. This same theme was tried many moons ago, and it wasn't very successful then

B.B

instructions	100%
graphics	95%
playability	65%
value for money	75%

★ ★ ★

They're coming to get you!

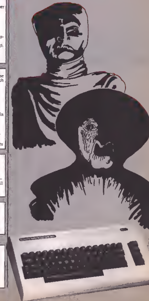
Face the alien in this game for the expanded VIC-20. Pick up objects and increase your status — you must be well equipped to beat your enemy.

By Richard Ikin

Type in program 1, save it and then run before entering program 2

The program moves screen memory to 7680 from 4096, colour memory to 38400 from 37888 and effectively gives you an unexpanded VIC-20 with 16K RAM!

It allows the use of UDGs on a 16K VIC



How it works

1-9	GOSUB to title screen instructions, speed of alien, DIM arrays, set up joystick variables
11-14	set up UDGs
15-90	set up variables, screen
100-199	execution module
750-7700	check all treasures present at start
800-849	sound effects
850-899	print status
900-920	place treasures on screen
950 999	update lives and status
1900-1999	move alien
2000-2299	move man up
2300 2499	move man down
2500-2799	move man right
2800-2999	move man left
3000-3299	update score
5000-5099	screen 1 data and associated variables
5100-5199	screen 2 data etc
5200-5299	screen 3 etc
5300-5399	switch to new screen
5500-5520	print titles at top of screen
6000 6099	print bad luck message if game lost
6500-6499	print congratulatory message if game won
9000-9199	title screen
9500-9540	choice sheet
10010-19999	data
20000-20048	instructions

Variables

CO	colour of
FN A (I)	random number between 1 and I
S1	voice 3
S2	voice 2
SS	status
LE	current level
L	lives
T ()	position of treasures (updated in each level)
D ()	direction of alien — up, down, left, right, still
AS()	speed of alien
M	position of man

Control characters

All in reverse video (except those used in GET A$ loops which represent keys)

Heart	clear screen
'S'	cursor home
Pi	print in yellow
Vertical line	cursor left
'Q'	cursor down
' '	print in green
Half chequer board	print in purple
'E'	print in white
'R'	turn reverse video on
' '	print in blue
low horizontal line	reverse off
'£'	print in red
right square bracket	cursor right

Major POKEs

36876	voice 3
36875	voice 2
36877	voice 4
36879	volume
36879	sets screen colour (8 = black, 93 = green, 25 = all white)
7680-8185	screen location

Symbol in GETA$ loops

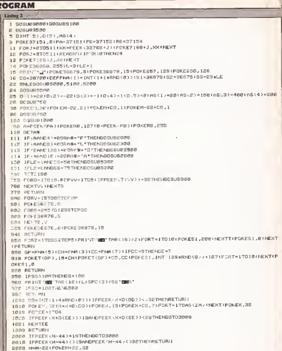
20016	F1 key
20027	F3 key
20036	F1 key
20046	F1 key
20047	F3 key

Listing 1

```
10 POKE43,1:POKE44,32:POKE8192,0
20 POKE641,0:POKE642,32
30 POKE648,30:POKE36866,150
40 POKE36869,240
50 PRINT"▄PLEASE WAIT...";
60 POKE631,76:POKE632,111:POKE633,13
70 POKE198,7:NEW
```

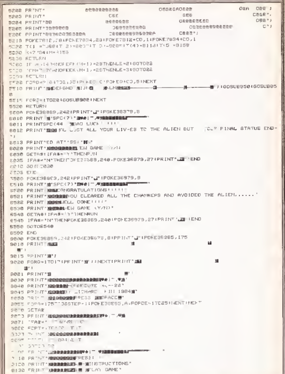
PROGRAM

Listing 2



```
1 GOSUB9000:GOSUB9100
2 GOSUB3500
5 DIMT(5),D(5),AS(4)
9 POKE37151,0:PA=37151:PB=37152:RB=37154
11 FORJ=0TO511:XX=PEEK(32768+J):POKE7168+J,XX:NEXT
12 FORJ=0TO511:READXX:IFXX<0THEN14
13 POKE7168+J,XX:NEXT
14 POKE36869,255:L=3:LE=1
15 PRINT"█J":POKE36879,8:POKE36878,15:POKE657,128:POKE650,128
16 CO=30720:DEFFNA(I)=INT(1+I*RND(0)):S1=36875:S2=36875:SS=25*LE
22 ONLEGOSUB5000,5100,5200
24 GOSUB5500
25 D(1)=22:D(2)=-22:D(3)=-1:D(4)=1:D(5)=0:AS(1)=20:AS(2)=150:AS(3)=400:AS(4)=800
26 GOSUB750
30 POKEM,20:POKEM-22,21:POKEM+CO,1:POKEM-22+CO,1
90 GOSUB750
100 GOSUB1000
108 A=PEEK(PA):POKERB,127:B=PEEK(PB):POKERB,255
110 GETA$
111 IF(AAND4)=0ORA$="F"THENGOSUB2000
112 IF(AAND8)=0ORA$="L"THENGOSUB2300
113 IF(BAND128)=0ORA$="D"THENGOSUB2520
114 IF(AAND16)=0ORA$="A"THENGOSUB2800
130 IFLE=1ANDSS=50THENGOSUB5300
131 IFLE=2ANDSS=75THENGOSUB5200
198 GOTO100
750 FORQ=1TO10:FORVV=1TO5:IFPEEK(T(VV))=32THENGOSUB900
760 NEXTVV:NEXTQ
770 RETURN
800 FORV=15TO0STEPVM
801 POKE36878,V
802 FORS=255TO128STEPSD
803 POKE36876,S
804 NEXTS,V
805 POKE36876,0:POKE36878,15
840 RETURN
850 FORZ=1TOSSSTEP5:PRINT"██"TAB(16);Z:FORT=1TO10:POKES1,200:NEXTT:POKES1,0:NEXT
:RETURN
900 GP=FNA(5):CH=FNA(3):CC=FNA(7):IFCC=5THENCC=7
910 POKET(GP),18+CH:POKET(GP)+CO,CC:POKES1,INT(128*RND(0))+127:FORT=1TO10:NEXT:P
OKES1,0
920 RETURN
950 IFSS>100THENSS=100
960 PRINT"██"TAB(10);L;SPC(3);SS"██%"
970 IFSS=100THEN6500
990 RETURN
1000 DD=INT(1+4*RND(0)):IFPEEK(X+D(DD))<>32THENRETURN
1010 POKEX,32:X=X+D(DD):POKEX,19:POKEX+CO,7:FORT=1TOAS(ZA):NEXT:POKEX,32
1019 FOREE=1TO4
1020 IFPEEK(X+D(EE))>19ANDPEEK(X+D(EE))<20THENGOTO3000
1021 NEXTEE
1099 RETURN
2000 IFPEEK(M-44)=19THENGOTO3000
2010 IFPEEK(M-44)<>19ANDPEEK(M-44)<>32THENRETURN
2020 M=M-22:POKEM+22,32
2030 POKEM,20:POKEM-22,21:POKEM+CC,1:POKEM-22+CO,1
2299 RETURN
2300 IFPEEK(M+22)=19THENGOTO3000
2305 IFPEEK(M+22)>15ANDPEEK(M+22)<13THEND=-22:GOSUB3200
2310 IFPEEK(M+22)<>19ANDPEEK(M+22)<>32THENRETURN
2320 M=M+22:POKEM-44,32
2330 POKEM,22:POKEM-22,23:POKEM+CO,1:POKEM-22+CO,1
2499 RETURN
```

```
2500 IFPEEK(M+1)=19ORPEEK(M-21)=19THENGOTO3000
2505 IFPEEK(M+1)>15ANDPEEK(M+1)<19THEND=-1:GOSUB3200
2510 IFPEEK(M+1)<>19ANDPEEK(M+1)<>32ORPEEK(M-21)<>19ANDPEEK(M-21)<>32THENRETURN
2520 M=M+1:POKEM-1,32:POKEM-23,32
2530 POKEM,24:POKEM-22,25:POKEM+CO,1:POKEM-22+CO,1
2599 RETURN
2800 IFPEEK(M-1)=19ORPEEK(M-23)=19THENGOTO3000
2805 IFPEEK(M-1)>15ANDPEEK(M-1)<19THEND=1:GOSUB3200
2810 IFPEEK(M-1)<>19ANDPEEK(M-1)<>32ORPEEK(M-23)<>19ANDPEEK(M-23)<>32THENRETURN
2820 M=M-1:POKEM+1,32:POKEM-21,32
2830 POKEM,26:POKEM-22,27:POKEM+CO,1:POKEM-22+CO,1
2899 RETURN
3000 POKEM,30:POKEM-22,30:GOSUB3100
3001 POKEM,31:POKEM-22,31:GOSUB3100
3002 POKEM,33:POKEM-22,33:GOSUB3100
3003 POKEM,32:POKEM-22,32
3004 POKE36877,0
3010 L=L-1:IFL=0THENGOSUB960:VM=-3:SD=-5.5:GOSUB8000:GOTO6000
3020 GOSUB960
3099 GOTO15
3100 POKEM+CO,7:POKEM-22+CO,7
3105 POKE36877,225
3110 FORT=1TO100:NEXT
3199 RETURN
3200 SS=SS+5
3210 FORSC=1TO5
3220 IFPEEK(T(SC)+D)>19ANDPEEK(T(SC)+D)<20THENPOKET(SC),32
3225 POKE36875,INT(RND(0)*255):FORT=1TO10:NEXT:POKE36875,0
3230 NEXTSC
3240 GOSUB950
3298 RETURN
5000 PRINT"███@@@@@@@@@@@@@@@@@@@@@@@@@@@@A            @@@A
 @A";
5001 PRINT"                    @@B                  @@@                  @@@";
5002 PRINT"B                   C@@@@@@@@@B          C@@@@@@@@@@@B        C@@@@@@@@@
@@@@";
5003 PRINT"B       D@@@@@@@@@@@@@@@A       D@@@@@@@@@@@@@A       D@@@@@@@@@@A";
5004 PRINT"                D@@@@@@A                  D@@@@A     C@            @@@A     C@
@";
5005 PRINT"             @@A     C@@@@B          @A     C@@@@@@B         @B    C@@@@@@@@B
 ";
5006 PRINT"   @@@@@@@@@@@@@@@@@B          ";
5010 M=8159:X=7004
5011 T(1)=7862:T(2)=8062:T(3)=8123:T(4)=7517:T(5)=8161
5020 POKE8118,28:POKE8141,29:POKE8118+CO,1:POKE8141+CO,1
5099 RETURN
5100 PRINT"███@@@@@@@@@@@@@@@@@@@@@@@@@@ D@@@@@@@@@@@@A          D@@@@@@@@@@A
 ";
5101 PRINT"    D@@@@@@A                  D@@@@A                                 ";
5102 PRINT"@                     2@                          @@B";
5103 PRINT"                    @@@B                     @@@@@@@B                C@";
5104 PRINT"@@@@@@@@B            C@@AD@@@@@@@@A       C@@@@@    D@@@A        C@@@@@@";
5105 PRINT"                C@@@@@@@@                 C@@@@@@@@E";
5106 PRINT"            C@@@@@@@@@@@@          C@@@@@@@@@@@@@@         C@@@@@@@@@@@@@@@@";
5107 PRINT"         C@@@@@@@@@@@@@@@";
5110 M=8144:X=7830
5120 POKE7790,28:POKE7812,29:POKE7790+CO,1:POKE7812+CO,1
5121 POKE7855,28:POKE7877,28:POKE7855+CO,1:POKE7877+CO,1
5130 T(1)=7927:T(2)=7975:T(3)=7984:T(4)=8065:T(5)=8147
5199 RETURN
5200 PRINT"███@@@@@@@@@@@@@@@@@@@@@@@@@@@@@      D@@@@@@@@@@@@@@@@@@@       D@@@@@@@@@@@@@@@
@";
5201 PRINT"        D@@@@@@@@@@@@@@@            D@@@@@@@@@@@@            D@@@@@@@@@@@";
```



```
5202 PRINT"          @@@@@@@@@@          O@@@@AO@@@          O@A  O@@ ";
5203 PRINT"               C@E                 E@@                   C@&@",
5204 PRINT"@B               @@@@@@B              O@@@@@@@@@           O@@";
5205 PRINT"3@@@@@B            3@@@@@@@@@@B            O@@@@@@@@@@@@@P       C";
5206 PRINT"@@3@@@3@@@@A        3@@@@@@@@@@@@@@P         C@@@";
5210 POKE7812,28:POKE7834,28:POKE7812+CO,1:POKE7834+CO,1
5222 T(1)=7068:T(2)=8007:T(3)=8008:T(4)=8118:T(5)=8158
5230 K=7784:M=8156
5238 RETURN
5300 IFM=7814ANDPEEK(M+1)=29THENLE=2:GOTO22
5310 IFM=7876ANDPEEK(M+1)=29THENLE=3:GOTO22
5399 RETURN
5500 FORD=7684TO8185:POKED,C:POKED+CO,5:NEXT
5510 PRINT"■DEFGHD ■IJ■   ■LN■■■———■———■———■";:GOSUB950:GOSUB85
8
5515 FORJ=1TO20:GOSUB900:NEXT
5520 RETURN
6000 POKE36869,242:PRINT"■":POKE36879,8
6010 PRINT"■"SPC(7)"■♠|‾◢■■■■■■■———"
6011 PRINTSPC(44)"■BAD LUCK!!!!!"
6012 PRINT"■■YOU LOST ALL YOUR LIV-ES TO THE ALIEN BUT YOUR FINAL STATUS END-
";
6013 PRINT"ED AT"';SS;"■"
6020 PRINT"■■■■NEW GAME (Y/N)"
6030 GETA$:IFA$="Y"THENRUN
6035 IFA$="N"THENPOKE36869,240:POKE36879,27:PRINT"■":END
6040 GOTO6030
6050 END
6500 POKE36869,242:PRINT"■":POKE36879,8
6510 PRINT"■"SPC(7)"■♠|‾◢■■■■■■■———"
6520 PRINT"■■CONGRATULATIONS!!!!!"
6521 PRINT"■■■YOU CLEARED ALL THE CHAMBERS AND AVOIDED THE ALIEN......"
6522 PRINT"■■WELL DONE!!!!"
6530 PRINT"■■■NEW GAME (Y/N)"
6540 GETA$:IFA$="Y"THENRUN
6545 IFA$="N"THENPOKE36869,240:POKE36879,27:PRINT"■":END
6550 GOTO6540
6592 END
9000 POKE36869,242:POKE36879,8:PRINT"■":POKE36865,175
9010 PRINT"■■                    ■                    ■
 ■";
9015 PRINT"■";
9020 FORO=1TO17:PRINT"■";:NEXT:PRINT"■■                         ■
 ■";
9021 PRINT"■                    ■";
9030 PRINT"■■■■■■■■■♠|‾,♥■"
9040 PRINT"■■■■-[illegible]CURE <--20"
9045 PRINT"■■■BY RICHARD HILL 1984■"
9050 PRINT"■■■PRESS ■SPACE■"
9055 FORA=175TO36STEP-1:POKE36865,A:FORDE=1TO25:NEXT:NEXT
9070 GETA$
9073 PRINT"■■■■■■■■■♠|‾◢■"
9071 IFA$=""THEN9070
9080 FORT=1TO500:NEXT
9090 PRINT"■■■■■■■■■■"
9095 FORT=1TO800:NEXT
[illegible]
9100 PRINT"■■■■■■■■♠|‾♥■■■■■■———"
9110 PRINT"■■■■■PRESS:
9120 PRINT"■■■■■-■-■INSTRUCTIONS"
9130 PRINT"■■■■■ ■PLAY GAME"
9130 GETA$
9140 IFA$="1"THENGOSUB20000:RETURN
```

VIC-20 + 8K PROGRAM

```
9100 IFA$="G"THENRETURN
9103 GOTO9130
9500 POKE36878,93:PRINT"♥♦:" ♠CHOICE SHEETALIEN SPEED
 (1-4)"
9510 PRINT"1-FASTEST4-SLOWESTENTER CHOICE....
."
9520 GETA$:IFA$<"1"ORA$>"4"THEN9520
9521 ZA=VAL(A$):GOTO9520
9525 GOTO9531
9530 Z=ZA+45:POKE8005,Z:POKE38725,0
9540 PRINT"THANKYOU,,,GETTING UP GRAPHICS":RETURN
10010 DATA255,255,255,255,255,255,255,255
10011 DATA255,254,254,252,240,224,128,128
10012 DATA128,128,224,240,252,254,254,255
10013 DATA1,1,7,15,63,127,127,255
10014 DATA62,124,96,62,31,3,31,60,60,126,198,198,254,254,198,198
10015 DATA124,254,194,252,252,194,254,252,60,124,192,252,252,192,252,252
10016 DATA33,99,89,98,59,103,127,57,,,4,4,4,4,7,,,,117,37,37,37,114,
10017 DATA,,238,132,228,36,228,,,,238,164,228,164,164,,,,174,168,174,162,238,
10018 DATA,,119,68,113,65,119,
10019 DATA255,63,63,31,15,15,7,1
10020 DATA,16,148,108,85,255,255,255,,60,126,126,126,126,60,,62,62,62,28,8,8,8,6
2
10021 DATA66,36,66,2,3,126,36,66,128
10022 DATA24,60,60,36,36,36,102,,,66,66,90,90,126,60,24
10023 DATA24,62,58,34,35,32,96,,,66,66,90,90,126,60,24
10024 DATA240,176,68,4,4,6,,,,,48,48,176,240,254
10025 DATA15,13,60,32,32,96,,,,12,12,13,15,127
10026 DATA255,129,129,165,165,189,129,161,161,129,189,189,189,189,129,255
10027 DATA24,24,24,24,24,24,24,24,36,36,36,36,36,36,36,36
10028 DATA ,,,,,,
10029 DATA66,66,66,66,66,66,66,66
19999 DATA-1
20000 PRINT"":POKE36879,8:POKE36869,242
20010 PRINT"SPC 7)"♥♦!" ♠"
20011 PRINT"B( :""
20012 PRINT"TAB(5)"HOW TO PLAY"
20013 PRINTTAB(31)"THE"
20014 PRINTTAB(30)"GAME."
20015 PRINT"[illegible]"
20016 GETA$:IFA$=""THEN20020
20017 GOTO20016
20020 PRINT"" ♥♦!" ♠"
20021 PRINT"THE OBJECT OF THE GAME IS TO TRAVEL      THROUGH THE THREE";
20022 PRINT"CHAMBERS,PICKING UP THE  OBJECTS AS YOU GO";
20023 PRINT"♠" TO TRAVEL YOU MUST   INCREASE YOUR STATUS  RATING TO 100%."
20024 PRINT"WHEN YOU HAVE PICKED UP ALL THE OBJECTS YOU GO TO THE NEXT    RO
OM";
20025 PRINT"BY ENTERING THE  CORRECT DOOR."
20026 PRINT"PRESS F3"
20027 GETA$:IFA$=""THEN20030
20028 GOTO20027
20030 PRINT"♥♦!" ♠"
20031 PRINT"  TO GUIDE THE MAN AROUND THE SCREEN YOU CAN USE THE FOLLOWING:
-"
20032 PRINT"-JOYSTICK"
20033 PRINT"[illegible]-RIGHT"
20034 PRINT"-DOWN"
20035 PRINT"-LEFT F1"
20036 GETA$:IFA$=""THEN20040
20037 GOTO20036
20040 PRINT"♥♦!" ♠"
20041 PRINT"PRESS:-"
20042 PRINT"F1-TO PLAY GAME"
20043 PRINT"F3-TO RE-READINSTPUCTIONS"
20045 GETA$
20046 IFA$=""THENRETURN
20047 IFA$=""THEN20020
20048 GOTO20045
```

Error trapping numbers on the BBC

Ever been foiled by the BBC's inability to accept large numbers? Ray Elder shows you how to get round the problem

Expert BBC owners will know that there is a slight problem when getting a number input. If you enter a very large number the machine won't accept it.

Try these lines

```
10  INPUT A
20  IF A X1000 THEN GOTO
    10
```

Now RUN the program and hold down the 9 key until two or more lines of 9s are entered and then press RETURN. The machine never gets to line 20 to check the number but stops with the error report — to all intents a crashed program.

I am in the process of writing the ultimate educational program. Look out for Willy goes Jet Setting on a Flight Simulator and has a Freaking Good Time while Learning the Alphabet from Rippoff Software.

But seriously, when testing my program with some children number input was discovered to be a problem. So I devised a procedure to eliminate this hiccup and here it is.

I first worked out exactly what I wanted in the form of a flow diagram and then programmed each part of the procedure.

PROCprint

First I created PROCprint with the intention that it could be used from any other part of the program. X% and Y% need to be set before calling it, as they provide the horizontal and vertical print positions. The text itself is passed as a parameter into a specific variable text$. The procedure is designed to work in mode 7 and print double height. This can be altered to print in any mode as I will explain later.

PROCwait

This is a standard procedure which I have only included to make the main procedure operate. Replace it with any that you normally use. The parameter for the length of the delay is sent into variable delay% and variable time% is used by this routine.

Having set up these two procedures I concentrated on the main one.

PROCnumber-input

The limit which the programmer defines in the brackets after the procedure name is passed to the variable limit%.

I LOCALised W%, X% and Y% and initialised number$ to hold the number which would be entered. X% and Y% were set up to the next print position by using POS and VPOS, and as I was using double height mode 7 I had to take 1 away from Y% to get back to the first line on which I was printing the cursor.

The main loop consists of a REPEAT UNTIL and the exit condition was defined as RETURN being pressed: lines **10030** and **10110**.

I decided to use INKEY$ rather than GET and store the key pressed in the variable NO$. It became a simple task of checking for DELETE being pressed or a valid number key and operating on number$ as appropriate: line **10060**.

Line **10080** checks on the limits defined by the programmer when the routine is called. The upper limit only is checked and is passed to variable limit%. I also had to add the length check after discovering on test that an unlimited number of zeroes could be entered. I set this limit arbitrary to seven digits (0000000) but more or less can be selected as suits your own program.

If either of these conditions are not met then an error message is passed to PROCprint, a short pause is called, the error message wiped, number$ reset to a nil string and the input buffer cleared.

And finally number$ is sent to PROCprint. Notice an extra space is also sent in order to wipe any characters from the last printing which would remain if DELETE had been pressed.

To test the set of procedures (each was tested individually as they were written at the development stage) I used lines **10** and **100** as explained in the REMs.

As it stands the routine will return a value of 0 if it is entered or if RETURN is pressed and number$ is empty, to prevent this if required, call the procedure by a line

```
REPEAT PROCnumber_input
  (199) UNTIL VALnumber$
  <>0
```

or if the number 0 is valid but not RETURN on its own

```
REPEAT PROCnumber_input
  (345) UNTIL number$<>
  ""
```

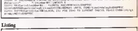
One of the advantages of programming like this is that it's easy to modify. To use this in other modes or in single height form there are only two alterations to be made:

remove the -1 from the value of Y% in line 10020 and change line 12010 to

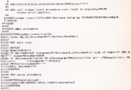
```
12010LOCAL Z%:PRINTTAB
    (X%,Y%);text$,
```

Interestingly when parameters are sent to PROCprint you can also embed colour, flash or any other screen control in the string to be printed. The whole thing is set out in a fully expanded form and it may be advisable if memory is getting tight to shorten it by the judicious use of multi-statement lines, shorter variable names and omit the REMs.

Procedures in condensed form



Listing



Close-up on Oric assemblers and monitors

Shingo Sugiura has been looking at Oric/Atmos assemblers. His results and conclusions are laid out for you to study. Look closely — you may get some surprises

You must all have been frustrated by the speed (or rather, lack of speed) of Oric BASIC. You might have tried your hand at some compiled high level languages, such as Forth (the only compiled high level language you can buy for the Oric) but even that isn't fast enough for your latest multi-dimensional megagame. The obvious step is to program in machine code, but how?

You can try writing the source code on a piece of paper, looking up the op-code for each instruction, calculate the relative jumps and then enter the hex data with a simple memory editor, but that doesn't get you very far and is certainly very time consuming. You really need an assembler to write code of more than a few bytes.

A good assembler should allow you to create machine code programs in a (fairly) intelligible form using mnemonics, labels, pseudo operators, macros and handle all the donkey work of actually converting the mnemonics into op-codes.

However, Oric doesn't have a built-in assembler like some micros. This means that you have to buy an assembler on tape and load it in before you start to program. Luckily there are a number of assemblers on the market specifically for the Oric/Atmos but, for some reason, they are not widely advertised and aren't often reviewed either. This makes choosing a suitable assembler very difficult. In this article, I have looked at four assembler/monitors. Usually, the number of directives (operators aimed at the assembler rather than the CPU itself), expression evaluator and general user friendliness separate the good assemblers from the rest, so I have concentrated on these points.

Assembler by Superior Software takes up memory from £9800 to £A6FF. The source code is entered in the form of a BASIC program with line numbers, the first of which must be "CALL£A000". I found no trouble entering a simple little routine and making it work. The actual assembly process is very quick with reasonably informative error messages when the assembler encounters one. Most of the standard assembler directives are there.

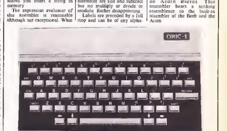
You are given the choice of whether a listing of the object code is given by the assembler in the form of OPT. EQU allows you to assign a value to a label, RES allows you to reserve a specified number of bytes of memory. DEFB allows you to insert eight bit values in memory. A good feature is that the number of parameters isn't defined and the expressions don't have to be of one type, so decimal, ASCII values, hex etc can be mixed. DEFW allows you to insert a 16-bit number at the assembly address and DEFS allows you insert a string in memory.

The expression evaluator of this assembler is reasonable although not exceptional. What annoyed me most was that you use a hash for hexadecimal rather than the more usual dollar sign or the ampersand. This also means you have to use "@" for immediate addressing rather than hash. However, this assembler does support both hexadecimal and decimal, as well as octal and binary. Operators recognised by this assembler are add and subtract but no multiply or divide or modulo. Rather disappointing.

Labels are preceded by a full stop and can be of any alpha-numeric character (including lower case, hooray!) Comments can be included by preceding them with a back slash.

One unforgivable ommission was an operator to find the lo- and hi-byte of a 16-bit value. Another disappointing ommission was the facility to assemble a machine code program to run at a particular address, but physically at another. This facility is necessary if you want to write a routine which occupies the same area of memory as the assembler itself.

Overall, a nice but not exceptional assembler. One thing is for sure, the author of this assembler was brought up on Acorn micros. This assembler bears a striking resemblence to the built-in assembler of the Beeb and the Atom.



SUPERIOR SOFTWARE
ORIC
COMPATIBLE
FOR THE 48K

Superior Software also markets a **Toolkit** to go with its assembler (both can be bought as one package for £17 90) This utility includes the usual features such as disassembler, block copy, verify two blocks of memory, search for a string of bytes, jump and execute with the option of breakpoints.

The disassembler is reasonable and relatively fast (slowed down by the abominably slow scrolling routine used by the Oric) One omission is the ability to disassemble to tape in the form of a source file so that it may be reassembled at a different address by the above assembler Also, no facility for tracing subroutines and offsets

It would have been nice if they had included a facility to set the registers to particular values and a routine to convert from decimal to hexadecimal Surprisingly, there is no decent memory hex/ASCII dump of any kind and there isn't a full screen memory editor either

This package isn't really worth £9 95

Toolkit by Micrograf is more of a general toolkit than a dedicated machine code monitor or assembler since it contains a host of useful BASIC utilities such as renumber, verify, protect, find etc However, it does include a reasonable machine code monitor and a full two pass assembler The machine code monitor includes convert (which converts decimal to hex, hex to decimal), fill a block of memory with a specified byte, execute machine code, search for a string of bytes or characters, jump to a routine, relocate code, display registers, move a block of memory, and a usable (but not brilliant) memory editor/dump But where's the disassembler?

The assembler managed to assemble my short test programs but the process isn't very user-friendly The object code isn't listed and there is no symbol table at the end either It does feature a powerful directive called **BYT** (which allows you to insert values into memory) and **TXT** (which allows you to enter strings) In fact, overall the assembler isn't as powerful as the others reviewed here but this package does include many more features and the assembler is more of a bonus At £11 95, it should appeal to the less experienced machine code programmers who simply want to write very short machine code routines and incorporate them into their programs (since there's the facility to convert a section of memory into BASIC DATA statements) It's certainly very good value for money

SUPERIOR SOFTWARE
TOOLKIT
ORIC
COMPATIBLE
FOR THE 48K

Orion comes packaged in a video-type box and again, the instructions booklet uses microscopic print Orion includes a full two pass assembler as well as a full feature machine code monitor First, let me describe the machine code monitor

The various features allow you to convert from hexadecimal to decimal, decimal to hexadecimal, dump memory in hex or ASCII (but not both at the same time), shift a block of memory, fill a block of memory with a given byte (but not a string of bytes) and set break points This monitor also includes a disassembler but this is rather disappointing in that the ASCII equivalent of the op-code is not printed, you can only disassemble a line at a time (it's far better to be able to halt the process by pressing a particular key as in the BASIC's List and most of the other disassemblers in this review) and there is no facility to follow subroutine calls Now, the assembler

As with all the other assemblers reviewed here, the source code is entered in the form of BASIC statements using standard mnemonics A facility is provided to assemble a code to run at a particular address but assembled physically at another

The expression evaluator will handle hexadecimal (which uses a hash as in Oric BASIC rather than the more usual ampersand or the dollar notation), binary and ASCII Operators are add and subtract and only one may be used per line No multiply, divide or modulo The directives include DFB which allows you to insert a byte in memory, DFW which allows you to insert a 16-bit value, DFS which allows you to reserve a block of memory and

DFS which allows you to insert a string. When the assembler actually assembles your source code, a listing of the object code is printed on the second pass. This does slow things down considerably and it would have been nice if there was a facility to stop the listing.

A good feature is the symbol table at the end of assembly. Again, the manual is of very poor quality. Not only is it very difficult to read, it's likely to fall apart very quickly. Also, it isn't nearly comprehensive enough for what could be one of the best assembler/monitors for the Oric.

ORION
COMPREHENSIVE ASSEMBLER/DISASSEMBLER FOR ORIC 1
LOTHLORIEN

Finally **Lightning Oric Assembler** by Mr Micro. Again, the source code is entered in the form of BASIC statements and multiple statements are allowed. Each mnemonic is separated by a colon as in BASIC. Once the source code is entered, it is assembled by typing a colon as in BASIC. Once the source code is entered, it is assembled by typing ERR = USR(lineno) where lineno is the lineno from which the source code starts.

The actual assembly process is quick and the error reporting very comprehensive. When an error is encountered, the assembler lists the offending line and prints an arrow under the error followed by a meaningful error message (all 27 of which are listed and explained fully in the manual).

The assembly process is accompanied by a listing of the object code and at the end a sorted symbol table is produced. The directives included are ORG, which specifies where the assembled code should reside (this can be used to assemble a code to run at one address but physically at another address), DB which allows you to insert 8-bit values or strings, DW which allows you to insert 16-bit values in the usual format (with the lo-byte preceding the hi-byte), RES which allows you to reserve a section of memory, DS with which you can insert a string with a delimiter (00 in this case).

The more esoteric ones are LST to switch off the listing of object code, SYM to switch off the sorted symbol table at the end of essembly, HLT ON which stops the assembly process as soon as an error is encountered and HLT OFF which makes the assembler continue and assemble as much as possible with the number of errors being printed at the end of assembly.

You may be thinking there's nothing wrong with this assembler. Unfortunately, there are a number of niggles. For one, it is far too space sensitive (for example, it doesn't understand LDA£10, it must be LDA £10) and labels must always be followed by a mnemonic and consist of upper case letters only.

The manual consists of 27 pages of A4 paper. Although it is full of misprints and rather cheaply produced (the pages are photocopies dot matrix printouts), this manual is actually readable unlike others reviewed here. Not only is the assembler described fully, there is a complete listing of a 6502 disassembler (both in BASIC and machine code) at the end. This not only shows you how machine code programs should be written but facilitates the process of learning how this assembler should be used.

Overall, this is probably the most powerful assembler for the Oric/Atmos. Copied with the (fairly) good manual, Lightning Oric Assembler is highly recommended.

In conclusion, it must be said that the general quality of assemblers for the Oric/Atmos is very low when compared with similar products for the more "serious" micros such as the Beeb or the more popular Spectrum. For example, the expression evaluators on all these assemblers were very poor and none of them had any sort of macro facility (which allows you to define a set of mnemonics which can be called up by a name) or facility for conditional assembly.

Furthermore, it would have been nice if a simple editor was provided to enter the source code since the Oric BASIC editor is very clumsy and you don't usually enter assembly language with line numbers. What disappointed me most was the disassemblers probably the most frequently used feature of any monitor. Standard facilities such as following subroutines and offsets were missing.

However, out of all the assemblers/monitors reviewed here, Lightning Assembler by Mr Micro stands out as being the most professional (although it is by no means perfect) and should be suitable for those budding machine code programmers out there. For

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MICROGRAF
AUTHOR. DESMDND BANDOO
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AND ORIC ATMOS

those who would rather stick to BASIC and write only the time critical parts in machine code, Toolkit by Micrograf with all its powerful BASIC utilities is recommended

Specifications

Assembler, Toolkit, £9.95 each or £17.90 for both Superior Software, distributed by Darkstar, 2 Regent Court, London N16 5LP

Toolkit £11.95 Micrograf, PO Box 17, Bracknell, Berks RG12 3NQ

Orion £12.95 MC Lothlorien, 56a Park Lane, Poynton, Cheshire SK12 1AE

Lightning Assembler £9.95 Mr Micro,, 69 Partington Lane, Swinton, Manchester M27 3AL

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If you wish to use the keyboard, press F5 to select keyboard, then press F1 to play. You will be asked to define keys to move up, down, left, right and pause. If the keys are already defined when you play you will be asked if you wish to use the same keys.

How it works

100-175	set up screen and variables
180-200	place snake on grid
205-215	place mushrooms on grid
220	print score, grid number, snakes left
230-260	test for joystick
265	test for keyboard
270	update snake's position
275	check for snake's collision
300-335	eat mushroom and make noise
340-375	died, any snakes left, noise for dying
400-440	print introduction screen
455-495	key pressed for play, intro, keyboard, joystick
505-535	input name for high score
545-615	introduction
620-650	cleared grid, add 2 mushrooms, 1 gap
660-705	pause game routine
710-745	keyboard move routine
755-815	define keys used to move snake
820-898	set up characters in RAM, read in data

Variables

DI	direction of snake's movement
HA	number of gaps in grid
HIGH	high score
H$	high score holder's name
A1-A9	parts of snake's body
CO	colour memory
MUSH	number of mushrooms
SC	score
GR	grid number
LI	snakes left
J2	peek for JOYSTICK 2
FO	food
K$	key pressed
CH	position in memory for user defined characters
DA	data for user defined characters
53280-53281	screen and border colours
54290	volume setting
99273-54278	sound registers

```
100 JOY=1
105 HA=1
110 HIGH=0:H$="COMMODORE 64"
115 GOTO 400
120 POKE53280,0:POKE53281,0:[illegible]
125 POKE[illegible]
130 PRINT"[illegible]"
135 FORG=1TO20
140 PRINT"[illegible]"
145 NEXTG
150 PRINT"[illegible]"
155 DI=1:CO=54272
160 FORN=1TO[illegible]
165 N=1064+(INT(RND(1)*800)+100):IFPEEK(N)<>32THEN165
170 POKEN,[illegible]:POKEN+CO,[illegible]
175 NEXT
180 [illegible]
185 POKEA1,[illegible]
190 [illegible]
195 POKEA1+CO,3:POKEA2+CO,3:[illegible]
200 [illegible]
205 [illegible]
210 [illegible]
215 [illegible]
220 PRINT"[illegible]"
225 PRINT"[illegible]"SC
230 [illegible]
235 J2=56320
240 IFPEEK(J2)=126THENDI=-40
245 IFPEEK(J2)=125THENDI=40
250 IFPEEK(J2)=119THENDI=1
255 IFPEEK(J2)=123THENDI=-1
260 IFPEEK(J2)=111 THEN 660
265 IF KEY=1THENGOSUB710
270 [illegible]
275 IFPEEK(A1)[illegible]THEN 300
300 POKEA1,[illegible]
305 POKEA1+CO,[illegible]
[illegible] GOSUB[illegible]
[illegible] IFPEEK(A1)[illegible]THEN 340
[illegible] POKEA1,[illegible]
[illegible] POKE54296,15
[illegible] FORT=1TO10:POKE54277,8:POKE54278,17:POKE54276,17:POKE54273,[illegible]
[illegible] SC=SC+1
[illegible] PRINT"[illegible]"SC
[illegible] POKE54276,0:POKE54277,0:NEXTT
[illegible] [illegible]IFFO=MUSHTHEN620
[illegible] GOTO[illegible]
```

```
340 POKE54296 15
345 FORR=1TO4
350 FORT=1000TO100 [illegible] POKE54276 [illegible] POKE54273 T
360 TOGOAD=[illegible]
362 POKE54296 0:NEXTT,R
365 TOGOAD=[illegible]
370 LI=LI [illegible]
375 [illegible]
380 PRINT [illegible]
385 FORR=1TO100:NEXT:GOTO125
390 PRINT "
395 IF SC<HI THEN 400
400 PRINT [illegible]
405 PRINT [illegible] SPC 10 "TODAYS HIGHEST SCORE
410 PRINT SPC [illegible]
415 PRINT SPC(1 [illegible] HIGH
420 PRINT SPC(18 [illegible]
425 PRINTSPC 10 [illegible]PRESS [illegible] TO PLAY"
430 PRINTSPC(11 [illegible]PRESS [illegible] FOR IHARD
435 PRINTSPC 8 [illegible]PRESS [illegible] TO USE KEYBOARD"
440 PRINTSPC10 [illegible]PRESS [illegible] TO USE JOYSTICK"
445 POKE198 0
450 GETA$
455 IF A$=[illegible]THEN[illegible]
460 IF A$=[illegible]THEN[illegible]
465 [illegible]
470 [illegible]
475 [illegible]THEN 390
480 [illegible]PRINT [illegible]SPC 24 [illegible]
485 [illegible]PRINT [illegible]SPC 24 [illegible] STICK"
490 [illegible]PRINT [illegible]SPC(28 [illegible]JOYSTICK
495 [illegible]PRINT [illegible]SPC(24) [illegible]KEYBOARD"
500 GOTO 450
505 PRINT [illegible] YOU HAVE BEATEN [illegible] HIGH SCORE [illegible]"
510 HI=SC
515 PRINT [illegible] YOU MAY NOW ENTER YOUR NAME"
520 PRINT [illegible] 10 CHARACTERS MAXIMUM [illegible]
525 POKE19 1:INPUT [illegible] NAME [illegible]:POKE19 0
530 IF LEN(N$)>10THEN[illegible]
535 PRINT [illegible]:GOTO380
540 PRINT [illegible]
545 PRINT [illegible] 14 [illegible]
550 PRINT SPC 14 [illegible]
555 PRINT [illegible] CONTROL A HUNGRY [illegible] AND MUST TRY
560 PRINT [illegible] TO EAT ALL THE MUSHROOMS WHICH ARE ON
565 PRINT [illegible] THE GRID YOU MUST NOT GO OFF THE SIDE OF [illegible]
570 PRINT [illegible] OR [illegible] EAT YOUR TAIL. THE MORE [illegible]
575 PRINT [illegible] CLEAR THE MORE MUSHROOMS [illegible]
580 PRINT [illegible] YOU [illegible] MOVE ONTO A [illegible] IN THE [illegible]
585 PRINT [illegible] IF YOU [illegible] YOU WILL BE KILLED "
590 PRINT [illegible] YOU WISH TO PAUSE THE GAME USE FIRE
595 PRINT [illegible] STICK IN PORT 2
599 PRINT [illegible]SPC 9 [illegible]PRESS [illegible] TO RETURN TO MENU"
600 POKE198 0
605 GETA$:IFA$=" "THEN605
610 IFA$=[illegible]THEN[illegible]
615 GOTO 540
```

```
620 [illegible]
625 PRINT [illegible]
630 FORA=1TO20 POKE [illegible]
635 FORD=0TO10 NEXT:POKE [illegible]
640 FORD=0TO1[illegible]
645 [illegible]
650 [illegible]
655 FORR=0TO[illegible]NEXT
660 IFKEY=1THENPRINT [illegible] F1 TO QUIT   SPACE TO CONTINU
665 IFJOY=1THENPRINT [illegible] F1 TO QUIT   JOYSTICK TO CONTINU
670 J3=56320
675 POKE50000 0
680 GETA$:IFA$=[illegible]THEN[illegible]:GOTO300
685 IFJOY=1ANDPEEK(J3)=127ORPEEK(J3)=111THEN680
690 IF[illegible]THE END
695 POKE[illegible]
700 PRINT [illegible]
705 GOTO 270
710 [illegible]
715 RETURN
720 IFA$=[illegible]THEN[illegible]
725 IFA$=[illegible]THEN[illegible]
730 IFA$=[illegible]THEN[illegible]
735 IFA$=[illegible]THEN[illegible]
738 IFA$=PP$ THEN 800
740 RETURN
750 PRINT "
755 IFUD$=""ANDDD$=""ANDLL$=""ANDRR$=""THEN765
760 PRINT DO YOU WISH TO USE THE SAME KEYS ? :GOTO300
765 PRINT KEY DEFINITIONS
770 INPUT [illegible]UP [illegible] UD$
775 INPUT [illegible]DOWN [illegible] DD$
780 INPUT [illegible]LEFT [illegible] LL$
785 INPUT [illegible]RIGHT [illegible] RR$
790 INPUT [illegible]PAUSE [illegible] PP$
795 PRINT [illegible] YOU HAPPY [illegible]
800 GETA$:IFA$=" "THEN800
805 IFA$=[illegible]THENGOTO120
810 IFA$="N"THEN765
815 GOTO300
820 PRINT "
825 PRINT [illegible]PLEASE WAIT WHILE GRAPHICS ARE SET UP
830 POKE[illegible] PEEK [illegible]
835 POKE1 PEEK(1)AND251
840 FORI=0TO2048:POKEI+14336 PEEK(53248+I):NEXT
845 POKE1 PEEK(1)OR4
850 POKE[illegible] PEEK[illegible]
855 POKE53272 (PEEK(53272)AND240)OR14
860 FOR[illegible]
865 READA:POKE[illegible]:NEXT
870 PRINT[illegible]:GOTO120
875 DATA30 0 60 126 24 24 24 24
880 DATA24 60 189 255 255 189 60 24
885 DATA[illegible] 189 [illegible] 189 [illegible]
890 DATA24 [illegible]
```

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You only have three minutes to shoot as many as you can. Three minutes to save the universe!

These are the keys for control: 5 moves left, 6 down, 7 up, 8 right and 0 fires laser guns.

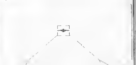
Variables

hi high score
sc score
ti time
s,t position when enemy can be shot
v,h position of enemy
i,u position of stars

How it works

10-45 sets up title screen
60-70 sets up variables
80-135 sets up playing screen
140-174 checks if key is pressed
3000-3050 end of game and high score
5000-5020 checks if enemy is shot
6000-6450 decides which way enemy craft moves
8000-8090 instructions
9000-9110 sets UDGs

Screen dump



Listing

```
  10 BORDER 0: PAPER 0: INK 7: CLS
  20 PRINT AT 8,8;" SPACE BATTLE";AT 10,9;"by S.Roberts"
  30 GO SUB 9000
  40 PRINT AT 8,5; INK 2;"   ";AT 8,22;"   "
  45 PAUSE 90: CLS
  50 GO SUB 8000
  60 PAUSE 500: CLS
  62 LET hi=0
  65 LET sc=0
  66 LET ti=180
  67 LET t=14
  68 LET s=11
  70 PRINT  FLASH 1;AT 10,10;"PRESS A KEY"
  80 PAUSE 10000
  82 CLS
  85 PRINT AT 1,4; INK 4;"SCORE-";sc
  90 INK 5: BRIGHT 1: PLOT 16,0: DRAW 223,0: DRAW 16,16: DRAW 0,125: DRAW -16,16
: DRAW -223,0: DRAW -16,-16: DRAW 0,-125: DRAW 16,-16
 100 PLOT 32,0: DRAW 24,16: DRAW -8,-16: PLOT 200,0: DRAW -8,16: DRAW 24,-16
 105 LET v=INT (RND*15)+4: LET h=INT (RND*28)+1
 106 FOR o=1 TO 100
 107 LET i=RND*250
 108 LET u=RND*136+16
 109 PLOT  INK 7;i,u: NEXT o
 110 PRINT AT 10,14; INK 6;"   "
 120 PRINT AT 12,14; INK 6;"   "
 130 PRINT AT v,h; INK 6;"   "
 135 LET ti=ti-.17: PRINT AT 1,16; INK 7;"TIME-";INT ti;" "
 130 IF ti<0 TNEN  GO SUB 3000
 140 IF INKEY$="5" THEN  LET h=h+1: PRINT AT v,h-1;" "
 150 IF INKEY$="6" THEN  LET v=v-1: PRINT AT v+1,h;"   "
 160 IF INKEY$="7" THEN  LET v=v+1: PRINT AT v-1,h;"   "
 170 IF INKEY$="8" THEN  LET h=h-1: PRINT AT v,h+3;" "
 174 IF INKEY$="0" THEN  PLOT 56,16: DRAW  INK 4;67,68: PLOT 192,16: DRAW  INK 4
;-67,68: BEEP .1,19: LET ti=ti-.19: PRINT AT 1,21; INK 7;INT ti;" ": INK 0: PLOT
 56,16: DRAW 67,68: PLOT 192,16: DRAW -67,68: INK 7: GO SUB 5000
 178 IF v<4 THEN  LET v=4
 180 IF v>18 THEN  LET v=18
 185 IF h<I THEN  LET h=I
 190 IF h>27 THEN  LET h=27
 195 GO SUB 6000
 200 PRINT AT v,h; INK 6;"   "
 210 GO TO 110
3000 PRINT AT II,1I; FLASH 1;"GAME OVER"
3010 IF sc>hi THEN  LET hi=sc: PRINT AT 15,9; FLASH 1;"NEW HIGH SCORE": INPUT "E
NTER YOUR NAME ";g$
3025 PRINT AT 8,6;"HI-";hi;" BY ";g$
3040 PAUSE 10000
3050 GO TO 65
5000 IF s=v AND t=h THEN  PRINT  INK 2; FLASH I; PAPER 7;AT 11,14;"   ": PRIN
T AT 12,14;"   ": BEEP .5,10: GO TO 5010
5005 RETURN
5010 LET sc=sc+I0
5012 PRINT AT 1,10; INK 4;sc
5015 PRINT AT v,h;"   ": LET v=INT (RND*13)+4: LET h=INT (RND*28)+1: PRINT AT v,
h;"   "
5020 RETURN
6000 LET j=INT (RND*0)
6010 IF j=I THEN  GO SUB 6100
6020 IF j=2 THEN  GO SUB 6200
6030 IF j=3 THEN  GO SUB 6300
6040  IF j=4 THEN  GO SUB 6400
6050 IF v<4 THEN  LET v=4
6060 IF v>18 THEN  LET v=18
6070 IF h<I THEN  LET h=I
6080 IF h>27 THEN  LET h=27
6085 PRINT AT v,h;"   "
6088 IF INKEY$="0" THEN  GO TO 174
6090 RETURN
6100 LET v=v-1: PRINT AT v+1,h;"   "
6150 RETURN
6200 LET h=h+1: PRINT AT v,h-1;" "
6250 RETURN
6300 LET h=h-1: PRINT AT v,h+3;" "
6350 RETURN
6400 LET v=v+1: PRINT AT v-1,h;"    "
6450 RETURN
7990 STOP
8000 PRINT AT 3,1;"SHOOT ENEMY CRAFTS WITH YOUR"
8010 PRINT :  PRINT " LASER GUNS WHEN THEY ARE ON"
8020 PRINT : PRINT " TARGET,YOU HAVE 180 SECONDS TO"
8030 PRINT : PRINT " DESTROY AS MANY AS YOU CAN"
8040 PRINT AT 11,11;"CONTROLS"
8050 PRINT : PRINT TAB 6;" 5 MOVES SIGHT LEFT"
8060 PRINT : PRINT TAB 6;" 6 MOVES SIGHT DOWN"
8070 PRINT : PRINT TAB 6;" 7 MOVES SIGHT UP"
8080 PRINT : PRINT TAB 6;" 8 MOVES SIGHT RIGHT"
8090 PRINT : PRINT TAB 6;" 0 FIRES LASER GUNS"
810 RETURN
9000 FOR a=USR "a" TO USR "g"+7
9010 READ b
9030 POKE a,b: NEXT a
9040 RETURN
9050 DATA 0,0,3,255,81,0,0,0
9060 DATA 126,24,255,255,219,126,60,0
9070 DATA 0,0,192,255,138,0,0,0
9080 DATA 128,128,128,128,128,128,128,255
9090 DATA 255,1,1,1,1,1,1,1
9100  DATA 255,128,128,128,128,128,128,128
9110 DATA 1,1,1,1,1,1,1,255
```

Useful handful

Some utilities to keep your micro busy: household accounts and programming hints

Introducting the Dots
32K BBC
£14.95

Blandford Press, Link Hse, West St, Poole, Dorset

The book that accompanies this package is written by keyboard player Dave Stewart and concentrates on the reading and writing of music for rock musicians

Unfortunately the programs supplied ignore this idiom entirely and bases all its problems and exercises on folk and classical tunes with a lame excuse at the end to jusfy this

The program is split into five parts covering clefs, keyboard and guitar fingering, note lengths, intervals and chords and composition There are a number of bugs in these programs with two containing wrong line references, one failing to chain the next program and one causing a bad program as it does chain the next part

For a package of this type this is unforgivable and shows a great lack of care and testing All the programs are drill and test based, there is a little teaching content followed by a test and then more teaching

A final major criticism is that when it is testing your manuscript writing skills it never shows the tune written on staves It uses a complex and unnecessery coding system One to avoid at all costs **D C.**

instructions	45%
graphics	35%
ease of use	50%
value for money	25%

★

Learn Basic Programming
Spectrum
£14.95

Logic 3, Unit 18 Wye Est, London Rd, High Wycombe HP11 1LH

This package looks impressive and there are a number of items to consider once you get inside the box There is a large book, two cassettes — double sided — and a flowchart stencil The stencil shows that this is a serious course trying to teach programming and taking the beginner through tried and tested avenues to a full understanding of the subject, leaving him using good technique that will not entail relearning later

The book starts at the lowest level and ends with the programming of simple games This makes it suitable for the very raw beginner and I expect the user to find that progress is fast

The programs are listed in the book and on occasions there are flowcharts as well

The strangest items in the book are the 'experiments' which are really self assessment questions and tasks but they are well chosen and not too difficult which means that they should encourage even the slower learners to have a go This is a well thought out and well executed package **D C.**

instructions	90%
graphics	N/A
ease of use	90%
value for money	80%

★ ★ ★ ★ ★

Learn BASIC Programming
32K BBC
£14.95

Logic 3, Unit 18, Wye Est, London Rd, High Wycombe HP11 LH

This is a course for those who want to understand the intricacies of programming instead of just playing games The package comprises a flow chart stencil, two cassettes and a large A4 book BASIC is a very easy language and this package makes learning even easier There are a couple of points that the authors make with which I would take issue

The BBC machine has an advanced BASIC that is meant to be used differently to older, less structured, languages This book doesn't take sufficient note of this difference and whilst their attitude is explained in the introduction, I don't accept the argument fully Another small niggle is the binding of the book itself It is case bound, it's impossible to lie it flat on the desk A simple spiral binding would make this simplicity itself

This is a good course, but these two tiny problems make it much more difficult to recommend that it would have been There are other courses for the BBC that take the BASIC into better account and I would prefer one of these **D C**

instructions	75%
graphics	N/A
ease of use	70%
value for money	65%

★ ★ ★

UAP
Sinclair QL
£22.95

D A Bandoo, 81 Mount Pleasant, Wembley, Middx

UAP stands for Unique Assembler Package, and what it does is to provide the QL machine language programmer with a powerful suite of programs to create machine code routines

The principle part is the assembler/editor Standard 68000 assembly language mnemonics can be entered to create a source file A powerful set of 24 commands plus the facility for full screen editing of assembly language lines combine to make life easy Labels of any length can be used, and the assembler supports ORG, DC, DS, MACRO, ENDM, MAC, and EQU Numbers can be entered in one of several bases and text entry is permitted. The source program can be fully documented, and saved on microdrive or listed on a printer

The ASM command creates the object file, which can be saved on microdrive The two pass assembler gives a list of label addresses, and reports any errors.

At a time when similar packages are appearing at higher prices, UAP will give serious QL programmers a complete machine code package at a resonable price

D.N

instructions	70%
display	90%
ease of use	90%
value for money	90%

★ ★ ★ ★

Mini Office
48K Spectrum
£5.95

Database, Europa Hse, 68 Chester Rd, Hazel Grove, Stockport

At first sight it appears that you might be getting a bargain four programs on one tape But closer inspection proves differently

The first program is a so-called word processor It comes nowhere near the genuine article Words are not processed, merely stored, in a choice of two fonts

The second program is the best on this tape, and probably the most useful It is a database for storing records or files, and the example given is a personal address book This has fields for forename, surname, address, phone number and age, and the complete records can be ordered by any field For instance ages could be used and sorted into ascending order Sorting and searching are very fast and the number of records is limited The third program is called Spreadsheet, and it is suggested that you might use it for your household accounts Most householders find a small notebook quite adequate Last, and certainly least, is a program used to draw graphs in conjunction with the previous program **B B**

instructions	80%
display	60%
ease of use	70%
value for money	90%

★ ★

Full screen editor

Use this program to produce attractive displays which you can save without yards of PRINT AT statements. Diana Smith gives you an in-depth explanation of how it works

This simple full-screen editor will help you produce attractive displays which can be saved without the need for lines and lines of PRINT AT statements

When a ZX81 with more than 3¼K of memory is switched on, the display file consists of a NEWLINE marker and 24 lines of 32 spaces with each line ending in a NEWLINE marker. The start of the display file can be found by looking up the value of the system variable D-FILE.

By stepping through the display file with judicious use of PEEKs and POKEs, we can move a cursor and print or erase characters.

The program listing starts by defining A$ as the first variable This will be used to store the screen once editing is complete It is most important that A$ is the first defined variable or the program will not work.

Lines 20 and 30 look up the values stored in the system variables D-FILE and VARS **Lines 110** to **140** set up a screen of graphic **A** characters The editor proper consists of **lines 200** to **410** A cursor (the inverse of the original character) is positioned at the top left of the screen. The problem then does some checks every time a key is pressed Tokens are not accepted The cursor keys move the cursor around the screen in the directions you would expect

RUBOUT gives a graphic A
STOP gives a white SPACE
NEWLINE will take you out of the editor

Note that you will **BREAK** the program if you use the SPACE key instead of STOP to get a space

It takes about 20 seconds for the BASIC to transfer the display in **lines 500** to **610** into A$ If you are using the SCREEN$ routine, you should key in the line 500 RAND USR 16514 in place of lines 500 to 610 This will then do the job instantly

Lines 700 and 710 will confirm that the display has been transferred to the string array A$, allowing it to be saved on tape Remember that RUN clears the variables, so you should run your own programs which use this routine with a GOTO ... (line number) or you will lose the display you have saved

Once a display has been POKEd into A$ you can transfer it to another suitably dimensioned string array with a LET statement, and use the routine to create further displays When you have set up your displays, the whole routine can be deleted and, for example, an index card produced simply by the statement PRINT A$

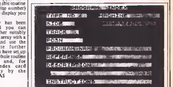
Inverse Video Lines

8 EDITOR
9 SET UP VARIABLES
109 FILL SCREEN WITH GRAPHIC A
198 FULL SCREEN EDIT
199 POSITION CURSOR
249 AWAIT KEY
279 ERASE CURSOR
289 POKE CHAR TO SCREEN
299 RUBOUT GIVES GRAPHIC A
309 STOP GIVES SPACE
319 RESET CURSOR POSITION
409 IF NOT NEWLINE, BACK FOR NEXT KEY
499 TRANSFER SCREEN TO A$
509 FIND LOCATION OF A$(1)
519 FIND START OF DISPLAY FILE
529 FOR THE 22 LINES
539 SKIP THE END-LINE CHRS
549 TRANSFER THE LINE
599 INCREMENT COUNTERS
699 PRINT SCREEN FROM A$

Variables

A$ stores display
DFILE holds value of system variable D-FILE, location of first byte of display file
VARS holds value of system variable VARS, location of first byte of variables file
B$ string holding graphic As
N FOR NEXT loop variable
L line number
C column number
CURSOR position in display file
I code of character entered via INKEY$
ARRAYPOS address of character within A$
SCREENPOS address of character within display file

Screen dump



How it works

8-110	set up variables
120-140	print screen backgroud
198 240	position cursor
250-270	await input
279-410	respond to input
499-620	transfer screen to A$
699-710	print A$

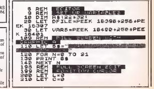
Hints on conversion

If your machine has a display file which cannot be PEEKed and POKEd, you may be able to substitute SCREEN $ (L,C) for PEEK and PRINT AT L,C for POKE You will not need to use system variables if this is the case

The CODEs will need to be changed for your machine ZX81 codes used are

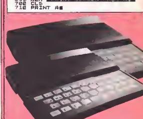
119	RUBOUT
227	STOP
115	CURSOR RIGHT
114	CURSOR LEFT
113	CURSOR DOWN
112	CURSOR UP
118	NEWLINE

Listing



```
   8 REM EDITOR
   9 REM SET UP VARIABLES
  10 DIM A$(22,32)
  20 LET DFILE=PEEK 16396+256*PE
EK 16397
  30 LET VARS=PEEK 16400+256*PEE
K 16401
 109 REM FILL SCREEN WITH
GRAPHIC A
 110 LET B$="▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒▒
▒▒▒▒▒▒▒▒▒▒"
 120 FOR N=0 TO 21
 130 PRINT B$
 140 NEXT N
 198 REM FULL SCREEN EDIT
 199 REM POSITION CURSOR
 200 LET L=0
 210 LET C=0
```

```
220 FOR N=0 TO 1 STEP 0
230 LET CURSOR=DFILE+L*33+C+1
240 POKE CURSOR,PEEK CURSOR+128
249 REM AWAIT KEY
250 IF INKEY$<>"" THEN GOTO 250
260 IF INKEY$="" THEN GOTO 260
270 LET I=CODE INKEY$
279 REM ERASE CURSOR
280 POKE CURSOR,PEEK CURSOR-128
289 REM POKE CHRS, TO SCREEN
290 IF I<64 THEN POKE CURSOR,I
299 REM CURSOR GIVES GRAPHIC A
300 IF I=119 THEN POKE CURSOR,8
309 REM STOP GIVES SPACE
310 IF I=227 THEN POKE CURSOR,0
319 REM RESET CURSOR POSITION
320 IF I<64 OR I=119 OR I=227 T
HEN LET C=C+1
330 IF I=115 THEN LET C=C+1
340 IF I=114 THEN LET C=C-1
350 IF I=113 THEN LET L=L+1
360 IF I=112 THEN LET L=L-1
370 IF C=-1 THEN LET C=31
380 IF C=32 THEN LET C=0
390 IF L=-1 THEN LET L=21
400 IF L=22 THEN LET L=0
409 REM IF NOT NEWLINE, BACK
FOR NEXT KEY
410 IF I<>118 THEN NEXT N
499 REM TRANSFER SCREEN TO A$
500 FAST
509 REM FIND LOCATION OF A$(1)
510 LET ARRAYPOS=VARS+6
519 REM FIND START OF DISPLAY
FILE
520 LET SCREENPOS=DFILE
529 REM FOR THE 22 LINES...
530 FOR L=0 TO 21
539 REM SKIP THE END-LINE CHRS
540 LET SCREENPOS=SCREENPOS+1
549 REM TRANSFER THE LINE
550 FOR C=0 TO 31
560 POKE ARRAYPOS,PEEK SCREENPO
S
569 REM INCREMENT COUNTERS
570 LET ARRAYPOS=ARRAYPOS+1
580 LET SCREENPOS=SCREENPOS+1
590 NEXT C
600 NEXT L
610 SLOW
620 STOP
699 REM PRINT SCREEN FROM A$
700 CLS
710 PRINT A$
```



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QL bookware

With the dearth of QL software, books are an essential for the QL owner. In the first of a regular series, Colin Wilton-Davies looks at two of the titles currently available

Many of the flood of books about the Sinclair QL seem to be variants of the QL User Guide, hopefully without all the bugs which featured in the early edition. I have set these to one side as I rather enjoyed hunting the bugs and achieving a score of eight bugs in a 10-line program in the Beginners' Section! The two books reviewed here avoid mentioning the Psion software bundled with the QL, and cover the areas of games and simulations.

The QL Book of Games by R G Hurley and D D Virgo, £6.95 from Micro Press, must be one of the many QL books begun before the authors could lay their hands on the hardware. The book contains listings for 13 different games programs, all with graphics. The selection covers a very good range of different types, games of chance, strategy, adventure and arcade games are all there.

My favourite are strategy and adventure games, so the first program I keyed in was Othello, one of the shortest in these categories. To my surprise, at the head of the listing was a boxed warning, "The game should be entered and played in the Caps Lock Mode..." One of the nice things about the QL is that this is unnecessary. When typing keywords in lower case, QD*S displays them, at least partially, in upper case when the line is entered. When writing your own programs, this can draw your attention to the inadvertent use of a keyword as a variable or procedure name.

Another nice thing is that one can use the operator '==' with strings to ignore cases altogether. Worse was to follow consecutive line numbers from 1 to 20, then 25, 30 and 190! This meant that you can't use the "AUTO" command when keying, but you have to type out each line number. Didn't Hurley and Virgo know about the "RENUMber" command? Probably not! The programs all seem to have been written originally for another version of BASIC, more primitive even than the Microsoft one, with some last-minute alterations for QL graphics and sound.

The graphics and sound are very good in the three games I keyed in. The hornpipe at the beginning of Sub Hunt is excellent, and the use of panning windows to animate the submarines very well done. Keying-in the games would have been a lot less tedious if the authors had used some of the best features of SuperBASIC such as "SELect ON", "ELSE" and more procedures instead of incredibly repetitive "IF... THEN GO TO" sequences. At a rough guess, 25% could have been lopped off the listings. Not, then, a book from which to pick up techniques of good programming.

Ok, but do the games work? The sad answer is, not very well. Sub Hunt was the most successful, but one submarine remained unscathed by direct hits. You are left to find out for yourself that you should have pressed the F1 (TV) key rather than the F2 (Monitor) key before running any of the programs. Monitor users failing to do this will find that Sky-Diver loses points when landing on half of the target, and gains points when just missing the other half.

Othello not only plays one of the weakest games, but doesn't recognise when the game is over. I actually managed to eliminate all the computer's pieces, which the ZX81 never allowed. Even then, I was asked to make another move, which was then rightly rejected as illegal. No winner was given.

As far as the book is a collection of ready-to-play games, I would award it about two out of ten. Think of it rather as one big adventure game for people who like improving and debugging other people's programs — in this case I would give it 9 out of 10!

Introduction to Simulation Techniques on the Sinclair QL by John Cochrane, £6.95 from Sunshine Books is a complete contrast to the QL Book of Games. The author must have felt that the title was highbrow enough to be off-putting, and included a game to make up for this. That may have been his only mistake, for although the bouncing ball is well simulated in real time, you can win the game without moving your bat!

There ends all resemblance to the other book. This one is very well written, introducing the subject in many interesting and useful ways, illustrated by well-structured programs which illustrate the great power of SuperBASIC. It is a pleasure to gain insight whilst working through this book, and at the end you are left with a collection of programs which will actually do useful things like weather-forecasting, financial modelling and critical path analysis. If I wasn't interested in all of these subjects when I opened the book, I was after I'd worked through it.

I hope we will see many more books by this author, and I don't think I'm being over-generous in rating his score as 9½ out of 10.

Helping hand

Simon Mills' set of four utilities will come in most useful in your programs — and you can use them for either Commodore 64 or VIC-20

Here are four short utilities for either the VIC-20 or Commodore 64. You will find them useful in many of your own programs. CP/V and Help facilitate the use of the 1540/1541 disc drive, while Find will come in handy for locating variables within a program. Finally Renumber does just that.

CP/V and Help

These programs make use of the 1540/1541 disc drive easier. All the commands are explained by typing help.

The Help program should be saved after CP/V. Help explains all the commands and how they are used, e.g.

ERA filename

means that to erase a file or program you type ERA followed by a space and the name and then press Return.

The program will also work on the Commodore 64 with a few alterations:

1 POKE 36879,27 changes the border to cyan and the screen to blue. Should be replaced with the relevant 64 POKEs.

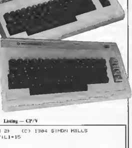
2 POKE 36878,15 turns volume to full, and should be replaced.

3 POKE 36876,195 plays a C in a high tone and should be replaced.

Everything else is the same.

How it works

0-900	main program
1000	directory
2000	SYSGEN
3000	display error
4000	VALIDATE
5000	print time
6000	initialise
7000	END
8000	rename
9000	erase
10000	LOAD
14000	format
15000	copy
17000	set time
18000-end	check, various subroutines



Listing — CP/V

```
0 REM CP V - CONTROL   PROGRAM FOR VICS 2K   (C) 1984 SIMON MILLS
5 PRINT"CP V VERS 2.3":POKE36879,27:LI=15
10 W1$="":W2$="":PRINT"";
20 OPEN1,0,0:INPUT#1,A$:CLOSE1:PRINT
30 IFA$="DIR"THEN1000
40 IFA$="SYSGEN"THEN2000
50 IFA$="ERR"THEN3000
60 IFLEFT$(A$,3)="VAL"THEN4000
70 IFA$="TIME"THEN5000
71 IFLEFT$(A$,7)="SETTIME"THEN17000
72 IFA$="HELP"THENL$="RUN":DV=8:W1$="HELP":GOTO10010
80 IFA$="INIT"THEN6000
90 IFLEFT$(A$,3)="BAS"THEN7000
100 IFLEFT$(A$,3)="REN"THEN8000
110 IFLEFT$(A$,3)="ERA"THEN9000
120 IFLEFT$(A$,4)="LOAD"THENDV=8:L$="RUN":GOTO10000
130 IFLEFT$(A$,4)="TAPE"THENDV=1:L$="RUN":GOTO10000
140 IFLEFT$(A$,4)="LIST"THENDV=1:L$="LIST":GOTO10000
150 IFLEFT$(A$,4)="TYPE"THENDV=8:L$="LIST":GOTO10000
160 IFLEFT$(A$,3)="FOR"THEN14000
170 IFLEFT$(A$,4)="COPY"THEN15000
900 PRINT:PRINT"BAD COMMAND":PRINT:GOTO10
1000 PRINT:OPEN1,8,0,"$0":CT=0
1010 GET#1,A$,B$
```

4 PROGRAM

```
1030 GET#1,A$,B$
1040 GET#1,A$,B$
1050 C=0
1060 IF A$<>"" THEN C=ASC(A$)
1070 IF B$<>"" THEN C=C+ASC(B$)*256
1080 PRINT"■"MID$(STR$(C),2);TAB(3);"■";
1090 GET#1,B$:IF ST<>0 THEN 1500
1100 IF B$<>CHR$(34) THEN 1090
1110 GET#1,B$:IF B$<>CHR$(34)THEN PRINTB$;:GOTO1110
1120 GET#1,B$:IF B$=CHR$(32) THEN 1120
1130 PRINT TAB(18);:C$=""
1140 C$=C$+B$:GET#1,B$:IF B$<>"" THEN 1140
1150 PRINT"■"LEFT$(C$,3)
1170 IF ST=0 THEN CT=CT+1:GOSUB20000:GOTO1030
1500 CT=CT-1:CT$=RIGHT$(STR$(CT),LEN(STR$(CT))-1)
1505 PRINT" BLOCKS FREE■":PRINT"■"CT$" ■ ■ENTRIES":PRINT:LI=15
1510 CLOSE 1:GOTO10
2000 PRINT"■SAVE"+CHR$(34)+"CP/V"+CHR$(34)+",8":PRINT"■■■■RUN"
2010 POKE198,5:POKE632,13:FORI=1TO4:POKE632+I,13:NEXT:END
3000 OPEN1,8,15:INPUT#1,A,B$,C,D:CLOSE1:PRINT"ERROR:"A
3020 PRINTB$:PRINT:GOTO10
4000 OPEN1,8,15:PRINT#1,"V0":CLOSE1:GOTO10
5000 PRINTLEFT$(TI$,2)":"MID$(TI$,3,2)":"RIGHT$(TI$,2):PRINT:GOTO10
6000 OPEN1,8,15:PRINT#1,"I0":CLOSE1:PRINT:GOTO10
7000 PRINT"■":PRINTFRE(0)"BYTES FREE":END
8000 FORI=1TOLEN(A$):IFMID$(A$,I,1)=" "THEN8020
8010 NEXT
8020 W1$="":W2$="":Z=I+1:FORI=ZTOLEN(A$):M$=MID$(A$,I,1)
8030 IFM$="="THEN8050
8040 W1$=W1$+M$:NEXT
8050 W2$=MID$(A$,I+1,LEN(A$))
8060 OPEN1,8,15:PRINT#1,"R0:"+W1$+"="+W2$:CLOSE1:PRINT:GOTO10
9000 FORI=1TOLEN(A$):IFMID$(A$,I,1)=" "THEN9020
9010 NEXT
9020 Z=I:W1$=MID$(A$,Z+1,LEN(A$))
9025 IFW1$="*"THENGOSUB18000
9030 OPEN1,8,15:PRINT#1,"S0:"+W1$:CLOSE1:PRINT:GOTO10
10000 W1$=MID$(A$,5,LEN(A$))
10005 IFW1$=""THENPRINT"■INPUT=?":GOTO10
10010 PRINT"■LOAD"+CHR$(34)+W1$+CHR$(34)+","+STR$(DV):PRINT"■■■■■■■■"L$"■"
10020 POKE198,10:POKE632,13:FORI=1TO9:POKE632+I,13:NEXT:END
14000 GOSUB18000
14050 FORI=1TOLEN(A$):IFMID$(A$,I,1)=" "THEN14070
14060 NEXT
14070 FORJ=I+1TOLEN(A$):M$=MID$(A$,J,1):IFM$="."THEN14090
14080 W1$=W1$+M$:NEXT
14090 W2$=MID$(A$,J+1,LEN(A$))
14100 OPEN1,8,15:PRINT#1,"N0:"+W1$+","+W2$:CLOSE1:PRINT:GOTO10
15000 FORI=6TOLEN(A$):IFMID$(A$,I,1)="="THEN15020
15010 W1$=W1$+MID$(A$,I,1):NEXT
15020 W2$=MID$(A$,I+1,LEN(A$))
15030 OPEN1,8,15:PRINT#1,"C0:"+W1$+"="+W2$:CLOSE1:PRINT:GOTO10
17000 FORI=1TOLEN(A$):IFMID$(A$,I,1)="="THEN17020
17010 NEXT
17020 IFLEN(MID$(A$,I+1,LEN(A$)))<>6THENPRINT"■INVALID TIME":GOTO10
17030 PRINT"■"TI$=MID$(A$,I+1,LEN(A$)):GOTO10
18000 PRINT"■ARE YOU SURE [Y/N] ?"
18010 GETS$:IFS$=""THEN18010
18020 IFS$="N"THENPRINT:GOTO10
18030 IFS$="Y"THENRETURN
18040 GOTO18010
20000 IF CT=LITHEN20020
20010 RETURN
20020 LI=LI+15:POKE36878,15:POKE36876,135:FORGH=1TO250:NEXT:POKE36876,0:POKE3687
```

```
9,0
20030 GETA$:IFA$=""THEN20030
20040 RETURN
```

Listing — Help

```
0 REM HELP PROGRAM     (C) 1984 SIMON MILLS
5 CM=17
10 PRINT"■■HELP VERS 1.1":POKE36879,27
20 PRINT"■■[1] LIST COMMANDS"
30 PRINT"■■[2] EXPLAIN COMMANDS"
35 PRINT"■■[3] RETURN TO CP/V"
40 PRINT"■■SELECT OPTION"
50 GETA$:IFA$=""THEN50
60 IFA$="1"THEN100
70 IFA$="2"THEN300
75 IFA$="3"THEN55000
80 GOTO50
100 RESTORE:PRINT"■":FORI=1TOCM:READA$:PRINTA$,:NEXT:PRINT
110 GOTO20
200 DATADIR,REN,ERA,SYSGEN,ERR,VAL,LOAD,LIST,TYPE,TIME,TAPE,INIT
210 DATAFOR,BAS,COPY,HELP,SETTIME
300 PRINT"■"
310 INPUT"COMMAND";C$
320 RESTORE:FORI=1TOCM:READA$:IFC$=A$THEN340
330 NEXT:PRINT"■NO COMMAND":GOTO20
340 ONIGOSUB400,500,600,700,800,900,1000,1100,1200,1300,1400,1500,1600,1700,1800
,1900,2000
345 POKE198,0
346 GETA$:IFA$=""THEN346
347 PRINT"■":GOTO20
350 PRINT"■■"C$
360 FORI=1TOLEN(C$):PRINT"¯";:NEXT:PRINT
370 RETURN
400 GOSUB350
410 PRINT"■LIST OUT THE DIRECTORY"
420 PRINT"OF THE DISK IN THE"
430 PRINT"■DRIVE.":PRINT"■■DIR■←":RETURN
500 GOSUB350
510 PRINT"RENAMES THE SPECIFIED ■FILE."
520 PRINT"■■REN■ NEWNAME=OLDNAME←"
530 RETURN
600 GOSUB350
610 PRINT"ERASE THE SPECIFIED   ■FILE."
620 PRINT"■■ERA■ FILENAME←"
630 RETURN
700 GOSUB350
710 PRINT"■MAKE A COPY OF CP/V   ■ONTO ANOTHER DISK."
720 PRINT"■■SYSGEN■←":RETURN
800 GOSUB350
810 PRINT"■GIVE ERROR NUMBER AND ■NAME IF ONE OCCURS."
820 PRINT"■■ERR■←":RETURN
900 GOSUB350
910 PRINT"■VALIDATE THE DISK IN  ■THE DRIVE."
920 PRINT"■■VAL■←":RETURN
1000 GOSUB350
1010 PRINT"■LOAD A PROGRAM FROM   ■THE DISK DRIVE AND    ■RUN IT."
1020 PRINT"■■LOAD■ PROGRAM←":RETURN
1100 GOSUB350
1110 PRINT"■LOAD A PROGRAM FROM   ■TAPE AND LIST IT."
1120 PRINT"■■LIST■ PROGRAM←":RETURN
1200 GOSUB350
1210 PRINT"■LOAD A PROGRAM FROM   ■THE DISK AND LIST IT."
1220 PRINT"■■TYPE■ PROGRAM←":RETURN
```

```
1300 GOSUB350
1310 PRINT"■DISPLAY THE TIME (SET ■WITH ■SETTIME■)."
1320 PRINT"■■TIME■←":RETURN
1400 GOSUB350
1410 PRINT"■LOAD AND RUN A PROGRAM■FROM TAPE."
1420 PRINT"■■TAPE■ PROGRAM←":RETURN
1500 GOSUB350
1510 PRINT"■INITIALISE THE DISK IN■THE DRIVE."
1520 PRINT"■(DO THIS EACH TIME YOU■INSERT A DISK)"
1530 PRINT"■■INIT■←":RETURN
1600 GOSUB350
1610 PRINT"■FORMAT THE DISK IN THE■DRIVE."
1620 PRINT"■■FOR■ NAME.DISC NUMBER←"
1630 RETURN
1700 GOSUB350
1710 PRINT"■GO INTO BASIC MODE.":PRINT"■■BAS■←":RETURN
1800 GOSUB350
1810 PRINT"■MAKE A COPY OF THE     ■SPECIFIED PROGRAM."
1820 PRINT"■■COPY■ NEWNAME=OLDNAME←":RETURN
1900 GOSUB350
1910 PRINT"■EXPLAIN ALL THE CP/V  ■COMMANDS."
1920 PRINT"■■HELP■←":RETURN
2000 GOSUB350
2010 PRINT"■SET THE INTERNAL":PRINT"■CLOCK."
2020 PRINT"■■SETTIME■=HHMMSS":RETURN
55000 PRINT"■LOAD"+CHR$(34)+"CP/V"+CHR$(34)+",8":PRINT"■■■■RUN"
55010 POKE198,10:POKE632,19:FORI=1TO9:POKE632+I,13:NEXT
```

Find

This is a short but useful program which will locate variables, strings of text or line numbers within a program

How it works

60000	input required thing
60040-60060	search program
60100-end	match with strings of characters in program

Variables

BL	beginning of line
EL	end of line
SS	string to search for

The program works by searching through your program looking for the first letter of the required string. If the two letters match, it then looks further ahead to see if the whole string matches

Renumber

This program will renumber a program from line 0 in steps of one. It should also work on the Commodore 64

How it works

60000	main program
61000	search for GOTO, GOSUB, ON, THEN
62000	change line number

Variables

BP	beginning of memory
EP	end of memory
S	location of line number in memory
B	beginning of line number
E	end of line number
OL, LS	last line number
NLS	new line number

The program works by finding a line number and all of its references in GOTOs, GOSUBs etc. It then changes all of these branches and goes on to the next line. Because everything is renumbered, the program is fairly slow. Commodore 64 owners could compile it

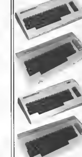
Listing — Find

```
60000 INPUT"■SEARCH FOR ";S$:PRINT"■":IFS$=""THENRUN
60010 BP=PEEK(43)+PEEK(44)*256:BL=BP+2
60030 EL=PEEK(BL-2)+256*PEEK(BL-1)-1
60040 FORI=BLTOEL
60045 IFPEEK(BL)+PEEK(BL+1)*256=60000THENEND
60050 IFCHR$(PEEK(I))=LEFT$(S$,1)THEN60100
60060 NEXT:BL=EL+3:GOTO60030
60100 FORJ=ITOI+LEN(S$)-1:A$=A$+CHR$(PEEK(J)):NEXT
60110 IFA$=S$THENPRINTS$" AT LINE"PEEK(BL)+256*PEEK(BL+1)
60120 A$="":GOTO60060
```

Listing — Renumber

```
60000 SL=0:C=0:IN=1:BP=PEEK(43)+256*PEEK(44):V=256:GF=1
60010 S=BP+2:EP=PEEK(45)+PEEK(46)*V-1
60020 IFPEEK(S)+PEEK(S+1)*V=60000THENPRINT"■■FINISHED":END
60030 GOSUB61000
60040 IFGF>0THENGOSUB62000
60050 POKES,LO:POKES+1,HI:PRINT"■RENUMBERED"C
60060 C=C+IN:S=PEEK(S-2)+PEEK(S-1)*V+2
60070 GOTO60020
61000 NL=SL+C:CO=0
61010 IFNL-V>=0THENNL=NL-V:CO=CO+1:GOTO61010
61020 LO=NL:HI=CO:RETURN
62000 FORI=BP+4TOEP
62010 P=PEEK(I):Q=PEEK(I+1)
62011 IFP+Q*V=60000THENI=EP+1:GOTO62030
62015 IFP=0THENFL=0
```

```
62015 IFP=44ANDFL=1THEN62100
62020 IFP=137ORP=141OR(P=167ANDQ>47ANDQ<58)THEN62100
62030 NEXT:IFGF=1THENGF=0
62040 RETURN
62100 B=I+1:GF=2
62110 FORJ=BTOEP
62120 IFPEEK(J)=0ORPEEK(J)=58THENE=J-1:J=EP+1
62125 IFPEEK(J)=44THENE=J-1:J=EP+1:FL=1
62220 NEXT
62300 OL=0:LS=PEEK(S)+PEEK(S+1)*V
62310 FORK=BTOE
62320 N=VAL(CHR$(PEEK(K))):PN=(10↑(E-K)):OL=OL+N*PN
62330 NEXT
62340 IFINT(OL)=LSTHEN62400
62350 GOTO62470
62400 NL$=MID$(STR$(SL+C),2,LEN(STR$(SL+C)))
62410 OL$=MID$(STR$(OL),2,LEN(STR$(OL)))
62420 Z$="000000"
62430 NL$=MID$(Z$,1,LEN(OL$)-LEN(NL$))+NL$
62440 FORL=0TOLEN(NL$)-1
62450 POKEB+L,ASC(MID$(NL$,L+1,1))
62460 NEXT
62470 GOTO62030
```



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(This seasons results are supplied with the package so that predictions can start immediately.)

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In-depth

Two extended reviews of new software for your Commodore. Read what our experts say

Micro Magpie
CBM 64
£39.95 (disc)

Audiogenic, PO Box 89 Reading Berks

If you want to keep records containing information, the usual approach is to keep a card index. This works well enough, but is tedious if searches for data are to be made. Most computer databases store 'cards' of data on disc in a similar but vastly superior manner. Magpie is such a database.

When used, you are presented with a 'form' which contains the information to be stored on any one card. You enter your data and it's saved for future access. You can then perform almost any kind of search, sort or manipulation you wish at high speed.

Magpie seems to be superior to many databases in that it's not fixed in its format. Many systems specify quite tightly how you can manipulate your data. Magpie leaves this open-ended and the choice is yours. How is this done? Simple, a high level language comprising of Macros (procedures) is available and each operation is built up from procedures or sub procedures.

On booting the program, you are first asked for details of your disc drive and printer, then you enter the first menu. This program uses 'pop up' menus extensively and you can move around almost exclusively by using just three of the function keys. I could try to discuss how the system operates in some detail, but the editor wouldn't let me. The ample instruction book does the job much better than I can.

Each application, be it an address list or stock list, is called a system. If you're simply going to crunch some data, you 'GET' the relevent system and run the required procedures. The creation of a system is somewhat complex, but the guide book plus some worked examples help. To give extra assistance, there is an accompanying "HELP" disc in the package.

As I mentioned earlier, this program is extremely flexible. You can have two sizes of form: one the size of the normal screen (24 rows of 40 characters) or a scrolling form (64 rows of 80 characters). The size of the second screen can be tweaked to suit your requirements. The data manipulation procedures available include: input a record, amend a record, search for a record (using multiple criteria), sort, output graphical information — and these are just examples.

If I do have a criticism for this program, it is that it takes a little too much effort to create a system. This means that users wanting a pre-defined system may not be inclined to want to learn how to program the beast. Computer enthusiasts who want to maintain a database, however, need look no further. As far as I can see, there's just no opposition to this product on the market at present.

A.W.

instructions	90%
display	90%
ease of use	90%
value for money	95%

★ ★ ★ ★ ★

Extended BASIC
CBM 64
£19.95

Mushroom, 193 Rommany Rd, London SE27 9PR

Extensions to the 64's BASIC are becoming common beasties. This is the fifth I've seen. Each time I review one, I ask myself the question: "How is this one different from and better than the rest?" Much to my delight, this program has a number of useful and valuable features. It also has some very irritating aspects, as I will reveal.

As far as I can determine, the package appears on cassette only. Since turbo load is not used, it takes some time. On running, the code hides behind the ROMs and only pinches about 2.5K.

As expected, the areas extended are graphics, sound and structure. Rather than re-invent the wheel, I'll mention the outstanding features of each section. Both hi-res and multicolour modes are supported with the usual drawing commands. CIRCLE and FILL aren't supported, but triangle and square fills are there.

You can extend the flexibility of the drawing commands by selecting how the points are plotted, e.g. OR, EOR or AND with background. A useful addition is a graphics dump to printer. You can even print multicolour screens with the four pens indicated differently. The usual sprite commands are supported and they work well enough.

The structured programming aspects include FOR ELSE, REPEAT UNTIL and procedures. Procedures can be named and global parameters passed. That's the usual stuff covered, now the unusual bits. The package supplies a BBC style assembler. This allows you to put your source code in the middle of your BASIC program. The code is enclosed by square brackets and the system assembles the code when the brackets are met in a program. Multiple passes are used allowing the use of labels.

You can either use the object code in your program or use the inbuilt commands to save and reload the code. A CALL command is supplied to enable you to run your machine code and pass values to the various registers. This command will even recognise the labels you use in the assembler.

There are a number of commands which offer multiple options. The option adopted depends on which bit of the parameter is set. This is rather a messy technique requiring regular reference to binary to decimal conversion tables.

Another irritating aspect relates to graphics. Each switch between graphics modes will clear the screen. This prohibits the drawing of graphics whilst in text mode and the subsequent switching in of the graphics. Just to add to the anguish, you can transfer the contents of the text screen to the high res screen. Fine when you want this feature, but I couldn't find a way of disabling it. Consequently every time the program finished I got READY printed on my hi-res picture.

Overall this is a powerful and memory economical package which represents excellent value. There are a number of inexplicable omissions which are careless but overall the balance is good. The provision of a good quality assembler is a positive bonus. In fact, I wish they would market it on its own. If you want an extended BASIC, try this one. At the price, it's the best I've seen.

A.W.

instructions	90%
graphics	N/A
ease of use	60%
value for money	95%

★ ★ ★ ★ ★

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ers Letters Letters Letters Let

Whoops!

Due to unavoidable production difficulties, we were obliged to re-run Money Maze for the C64 in HCW 96 January 22. We're sorry about that, but it was beyond our control.

View from abroad

In the letters columns of various magazines we frequently read complaints regarding the various problems people encounter in satisfying their computers' appetites. I point out that there is a sizeable computer public which lives in neither Britain nor the States — a public which reads your magazine (four months old) with envy and is left to the mercy of local importers/retailers and duties (a fate worse than blowing a chip) or your mail-order companies.

Most of these companies are very helpful to us desperate foreigners — especially ones from the old colonies like New Zealand — but there are a few distinct exceptions and the distances involved make it a bit hard to just phone them and complain.

I would like to publicly thank those at HCW and Argus in general for their attitude to non-British readers. people should be made aware of the sort of people who run this magazine and I say a most heartfelt thanks to them.

If that's not worth £5 of software then what is? Nothing like a bit of foreign aid. (Only kidding — colonial sense of humour.)

Mark Ottaway, New Zealand

How could we resist? The only problem is that you forgot to tell us which computer you own, Mark, so we can't send you any software. Let us know and we'll pack a little treat off to you.

Atari pal wanted

Please can you help me. I have recently bought an Atari 400 16K computer, but I can't buy any software in my area.

Please could you put me in touch with another 16K Atari owner so that we can swap and lend each other games. I eagerly await a reply.

Jason Saywell, 65 Rush Green Rd, Romford, Essex RM7 0PT

Cry of protest

Please can someone tell me why the ZX81 is being pushed aside. Today I went to John Menzies for a 16K RAM pack for my ZX81, but they told me they don't stock ZX81 products any more.

And when I bought the Christmas edition of HCW I found to my horror that the Amstrad had been put in the ZX81's place in the charts.

Now maybe I can't do anything about the charts, but who says I can't object to the ZX81 going out. Please everyone don't desert us! There are still a lot of ZX81 owners around.

Now I can say thanks for the brilliant ZX81 games you put in your magazines.

Steven Wilson, Stoke-on-Trent, proud ZX81 owner

Join the club

I'd like to let readers know about a club which has been opened for users of the Amstrad CPC464. The club produces a monthly tape magazine called The Magazine and it includes news, games and utilities reviews, readers letters, software discounts of 15 per cent, exchange club, pen pals and more. Membership is £3 for one year.

The club was founded in December 1984 and the second issue is out in January.

David Baxter, Amsclub, 42 Mt Stewart St, Carluke, Lanarkshire

VIC-20 supporter....

There is too much Spectrum propaganda in all magazines. Too many games and not enough for other computers. The Spectrum has many disadvantages — bad keyboard, poor sound, no switches, no joystick sockets and above all it gets too hot too quickly. The games are childish and boring.

There are too many Spectrum owners showing off their pieces of small plastic and rubber. They need someone to keep them quiet by telling them the facts.

The VIC 20 isn't dead, but stronger than ever. It has sold more than two million computers worldwide. It's still selling fast, although Commodore has stopped making it. The software is excellent and it has many advantages — proper keyboard, amazing sounds, expansion capabilities to 64K, joystick port, switch. It's the only computer under £150 to have excellent colour graphics, easy BASIC language, books, software.

Long live VIC 20!

Alex Soany, London

...and one more

I'm very pleased to have the opportunity to write in to you. I have to say that your magazine is the best and I hope the price remains as it is for much longer.

I'm a VIC 20 owner. Although the VIC has been much criticised by Spectrum owners, I think they're just jealous. Although the VIC has only 3.5K it can be expanded to 16K, 32K or even 64K.

Thanks for your support for this machine which some people say is dead. It isn't. How can it be after selling two million worldwide? How can it be dead where there are superb games still coming out? For its low price it's the best around — the proper keyboard and vast amount of software prove that.

Thanks for publishing program listings for the VIC — and long live the legendary VIC 20 and HCW!

A P Prodromou, London

Pat on the back

I would like to congratulate you on publishing yet another excellent game for the VIC-20, by Paul Cockerton in HCW 91.

It was worth typing in, even I had to type in the data all over again. It really was good and had terrific graphics. Well done, HCW and Paul Cockerton.

I have recently joined the Interceptor Software Club which has free membership and is excellent value for just one stamp and an envelope. Posters, latest releases and special offers — it's great!

Ian Longdon, Hinckley

The address for the Interceptor Software club is Lyndon House, The Green, Tadley, Hants

Helping hand

When I first bought a computer I found it hard to get started because I knew nothing about how to operate it. I began with an Oric 1 but now I have a Commodore 64.

If anyone needs help in operating or programming the Commodore or Oric 1 I would be only too pleased to help. Please write to me.

Christopher McRebb, 1 Meredene, Vange, Essex

Make room

In HCW 91 the buyers guide stated that the Oric Atmos has a 64K memory. Actually the Atmos only has a 48K memory.

I know Oric isn't too popular but can you make room for a few more Atmos games?

Craig Taylor, Newcastle upon Tyne

We do feature Oric programs as often as we can. We will continue to do so as long as we have good programs written and submitted by you, the readers.

Alive and kicking

What on earth does Barry Starr think he's on about (HCW 92)? He calls the TI 99/4A a dead computer. Has he never heard of the USA? The amount of hardware and software produced for the TI is enormous.

Since when has the Spectrum been supported as much as the TI is, by such large companies as Milton Bradley, Parker Brothers, Atari, Navarone and Adventure International?

The TI-99/4A may have been a dead computer in Britain, but it is now being reborn with the help of Parco Electrics and Arcade Hardware who are importing a huge amount of American equipment.

Does Barry realise how many TI owners there are? Over two million — and 200,000 of those are in Britain. If it hadn't been for the introduction of the TI 99/4A dear Sir Clive might still be toying with his ZX80. As for the amount of good games available for the TI, take your pick from Miner 2049er, Buck Rogers, Popeye, Frogger, Demon Attack, Bigfoot and many more. The list is almost endless.

As for the new Spectrum+ and it's keyboard — well, poor Sir Clive!

Simon Chell, Melton Mowbray

Thanks for the visit

I am chairman of the Basingstoke Commodore Users Group and we recently arranged two visits on consecutive Saturday mornings to Interceptor Micros in Tadley.

We were warmly welcomed by Julian Jones and his staff and although they were very busy Mr Jones personally took time to show us around and explain the workings of his company.

The BCUG would like to thank Interceptor Micros for their kindness and we wish them all the best for 1985.

D Love, BCUG

Send your letters to Letters, Home Computing Weekly, No 1 Golden Square, London W1R 3AB. Don't forget to name your computer — the best letter could win £5 worth of software. Got a problem with your micro? We'll soon be starting a queries page so send your technical questions to Queries at the above address.

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NOTE WE HAVE MOVED TO NEW PREMISES

A taste for adventure

If you like adventures then you'll love this page. Read on to find out what our experts think

Legend
48K Spectrum
£14.95

Century, Portland Hse, 12-13
Greek St, London W1V 5LE

Legend is the largest package for a game that I've ever seen. Within that package, besides the tape, is a book, a map, and a six page instruction booklet with a plastic key overlay.

The book is described as a mighty fantasy saga, and is set in no particular era or land. There was a faint hint that reminded me of one of the countries now coloured red on the world map. I thoroughly enjoyed it. It deserves a better fate.

The game doesn't match up to the book at all. The program is in two parts, with the first spent recruiting forces to be used in the second. In the first part you are continually given options. You might be asked 'do you want to see so and so? Y/N'. If you answer 'yes' you see him. If you answer 'no' you are captured and taken to him anyway. Every now and again you face a sword wielding figure and fight a not very convincing duel.

I got the impression that the whole game had been written around the duelling scene. **B.B.**

instructions	100%
graphics	75%
playability	70%
value for money	75%

★ ★ ★

Storm Warrior
CBM 64
£9.95

From Runner, 620 Western Ave,
London W3

Have you ever day-dreamed about being a super hero. Well Storm Warrior may be the answer to your dream.

You take the part of the warrior on a quest to find and destroy the Sacred Skull. You have the choice of five levels of difficulty, ranging from Beginner to Master. Once this is chosen you start your journey through the game's 12 screens — for the less adventurous there is a demonstration mode.

The games range from hitting a ball of light past an evil creature which throws thunder bolts at you, battling on a bridge, to fighting in an underground cavern with assorted nasties.

The program is graphically very good and the sound effects and music match, but overall the game has one huge drawback — it is appallingly difficult. For the hardened games player this may seem trivial, but any game which, even at beginners level, makes it hard to get past the second screen seems to be tough going on the new user.

Beautifully presented, but marred by its difficulty. **M.W.**

instructions	85%
graphics	100%
ease of use	50%
value for money	75%

★ ★ ★

The Sondman Cometh
48K Spectrum
£10.95

Star Dreams, 17 Barn Close,
Seaford, Sussex BN25 3EW

Yet another text/graphic adventure game with a tangible prize for solving it. This prize is a relatively modest one of a weekend for two in Paris, which can't be bad. Whoever wins the prize will certainly have earned it, believe me.

After about thirty man hours spent playing the game I know what solution is expected, but I'm not sure that I have the full answer yet, such is the complexity of the problem. The game consists of two parts and only completing certain tasks in the first can you get into the second. Although the format is pretty much the same in both parts, there are different tasks and different scenes.

The title gives a clue to the fact that you are dreaming all the events which are taking place. Because of this many bizarre things can happen, and often do.

Programming is a mixture of machine code and BASIC, which is a bit slow at times, but it is very well done nevertheless. Well worth buying even if you don't get to Paris. **B.B.**

instructions	100%
graphics	90%
playability	100%
value for money	90%

★ ★ ★ ★ ★

Magic Stane
CBM 64
£5.95

Audiogenic, PO Box 88, Reading, Berks

One of the most noticeable aspects of this program is its unbelievably long loading time. Of course, with the common usage of turbo loads a non-turbo game sticks out like a sore thumb.

Once it's up and running you're greeted by a quite competant program. The author has elected to use redefined graphics and sprites to generate pictures rather than high resolution. This has been done well and any weakness is made up for by the instantaneous appearance of pictures.

The idea is to search a haunted mansion for a magic stone, apparently a precursor to the transmutation of gold. The normal two word type of parser is used.

My main moan is with the standard of responses to error. Phrases such as BAD ACTION or BAD SOLUTION simply aren't good enough. Additionally, objects shown in the pictures often aren't recognised by the interpreter. Most odd!!

On the whole, an above average game which responds rapidly and is fairly testing. Newcomers to adventures should certainly give it a try. **A.W.**

instructions	70%
graphics	70%
ease of use	75%
value for money	90%

★ ★ ★

Time Traveller
CBM 64
£5.95

Audiogenic, PO Box 88, Reading, Berks

Audiogenic has recently entered the adventure market with some new games. This is one of them. After taking the dog for a walk (it's non-turbo) all is revealed.

What we have is a text/graphical adventure of a quite good quality. User defined characters and sprites are used in the pictures and displays are drawn instantaneously. As you take or drop items, they appear in the picture. This is useful and helps with the atmosphere. Additional nice touches include computer text and the display simulates paper being printed on a tractor feed printer.

The plot is fairly standard. You must search various time zones and locate the broken pieces of the magic hourglass to restore the delicate balance of time.

Two word commands are recognised and the responses are rapid. One or two incongruities indicate an occasional lapse, but they're non-fatal, fortunately, and simply irritate the player.

Adventure fanatics will probably find this game easy meat, but newcomers to adventures will find it a challenge and good fun. The price is good and overall quality above average. **A.W.**

instructions	70%
graphics	75%
ease of use	75%
value for money	85%

★ ★ ★ ★

TOP 20 *Compiled by* Gallup Software

HCW is proud to present the Gallup software chart — the one to believe in. Gallup's reputation as a credible market research company is second to none. This software study is carried out nationwide in both independent and chain stores, on a weekly basis. This is the chart to watch out for — the one you know you can trust.

Week Ending January 15, 1985

LAST WEEK	MOVE	THIS WEEK	TITLE	PUBLISHER	SPECTRUM	CBM 64	BBC	ELECTRON	VIC 20	AMSTRAD	ATARI	OTHERS
1	●	1	Ghostbusters	Activision	●	●						
3	▲	2	Match Day	Ocean	●							
2	▼	3	Daley Thompson's Decathlon	Ocean	●	●						
6	▲	4	Booty	Firebird	●	●						
11	▲	5	Football Manager	Addictive Games	●	●	●			●		●
07	▲	6	Manic Miner	Software Projects	●	●	●			●		●
4	▼	7	Air Wolf	Elite	●							
40	▲	8	Blockbusters	Macsen	●	●	●	●				
9	●	9	Hunchback II	Ocean	●	●						
14	▲	10	Elite	Acornsoft			●	●				
22	▲	11	Pyjamarama	Mikro Gen	●	●				●		
15	▲	12	Skooldaze	Microsphere	●	●	●					
13	●	13	Knight Lore	Ultimate	●							
12	▼	14	Beach Head	US Gold	●	●						
5	▼	15	Starstrike 3D	Realtime	●							
24	▲	16	Combat Lynx	Durrell	●	●				●		
31	▲	17	Kong Strikes Back	Ocean	●	●						
18	▼	18	American Football	Mind Games	●	●				●		
18	▼	19	Monty Mole — Wanted	Gremlin Graphics	●	●						
10	▼	20	Hunchback	Ocean	●	●	●	●	●			

SPECTRUM *Top Ten*

1	**Ghostbusters** Activision
2	**Match Day** Ocean
3	**Daley Thompson's Decathlon** Ocean
4	**Airwolf** Elite
5	**Booty** Firebird
6	**Knight Lore** Ultimate
7	**Skooldaze** Microsphere
8	**Starstrike 3D** Realtime
9	**Hunchback II** Ocean
10	**Pyjamarama** Micro-Gen

BBC *Top Ten*

1	**Elite** Acornsoft
2	**Blockbusters** Macsen
3	**Manic Miner** Software Projects
4	**Jetpac** Ultimate
5	**Eddie Kidd Jump Challenge** Martech
6	**Sabre Wulf** Ultimate
7	**Football Manager** Addictive Games
8	**Srabble** Le sure Genius
9	**Hobbit** Melbourne House
10	**Return to Edan** Level 9

COMMODORE *Top Ten*

1	**Ghostbusters** Activision
2	**Raid over Moscow** US Gold
3	**Daley Thompson's Decathlon** Ocean
4	**Staff of Karnath** Ultimate
5	**Booty** Firebird
6	**International Football** Commodore
7	**Hunchback II** Ocean
8	**Bruce Lee** US Gold
9	**Football Manager** Addictive Games
10	**Beach Head** US Gold

Compiled by Gallup for the industry's weekly trade magazine, Computer and Software Retailing
For details contact John Sorrenti, Computer and Software Retailing, No. 1 Golden Square, London W1R 3AB. 01 437 0626

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[illegible] speed if you gain. But whatever you do, stay on course.

[illegible] You'll slow down and lose valuable seconds [illegible] into the ratio. Or worse, you'll end up on the [illegible]

[illegible] don't like to get dirty!

[illegible]

Now you're risking yours to [illegible]

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[illegible] but try not to squander your precious fuel supply.

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